

# *The* **REFRIGERATION & AIRCONDITIONING** *Business*

MAY 1960

EDITORIAL DEPT  
UNIVERSITY MICROFILMS  
313 NORTH FIRST ST  
ANN ARBOR MICH 48106



AN INDUSTRIAL PUBLISHING CORPORATION MAGAZINE

**ALSO IN  
THIS ISSUE**

Make your next product showing a carnival for fun and profit  
Ohio home builder profits by making year-round airconditioning a must  
Efficient service dispatching is just a matter of time



## every inch a **VIKING!**

At Viking, we realize that the production of highest-quality thin-wall copper tube depends as much on the skill and knowledge of the workers as much as it does upon machines. Accordingly, every man on the Viking production team has been carefully trained for his part in the job of producing thin-wall tube. He knows exactly what he is doing.

He is dedicated to the Viking proposition that nothing but the best will do — whether it is meeting a particular specification for tubing — or an emergency schedule for delivery.

Viking sales and engineering personnel are always ready to discuss with you any special copper tube requirements you may have. They know they can take your order, in complete confidence that all your specifications will be met — exactly. That's because everyone engaged in the manufacture of Viking copper tube adheres unwaveringly to the idea: it *must* be every inch — a Viking!



# VIKING

COPPER TUBE CO.

CLEVELAND 10, OHIO



# For Your Protection

SPECIFY • INSTALL

## ALCO SOLENOID VALVES

FOR POSITIVE CONTROL

**ALCO'S HIGH QUALITY**

Guarantees Maximum Life

- Constructed both for hermetic and non-hermetic applications
- Manufactured of the best grades of corrosion-resistant materials
- Alco's Cool, POWER-PACKED coils, moisture proof impregnated
- Positive closing with pressure tested seating for POSITIVE SHUT-OFF
- All MANUFACTURED by ALCO to ALCO's high Quality Control Standards

*Comes apart easily in the line for cleaning*

More than **125** models  
for every control application:

**LIQUID • SUCTION  
HOT GAS • WATER  
STEAM • AIR**

Call your ALCO WHOLESALER, WRITE  
for Specifications Bulletin No. 173-55

- BUY SECURITY
- BUY QUALITY
- BUY ALCO

### ALCO VALVE CO.

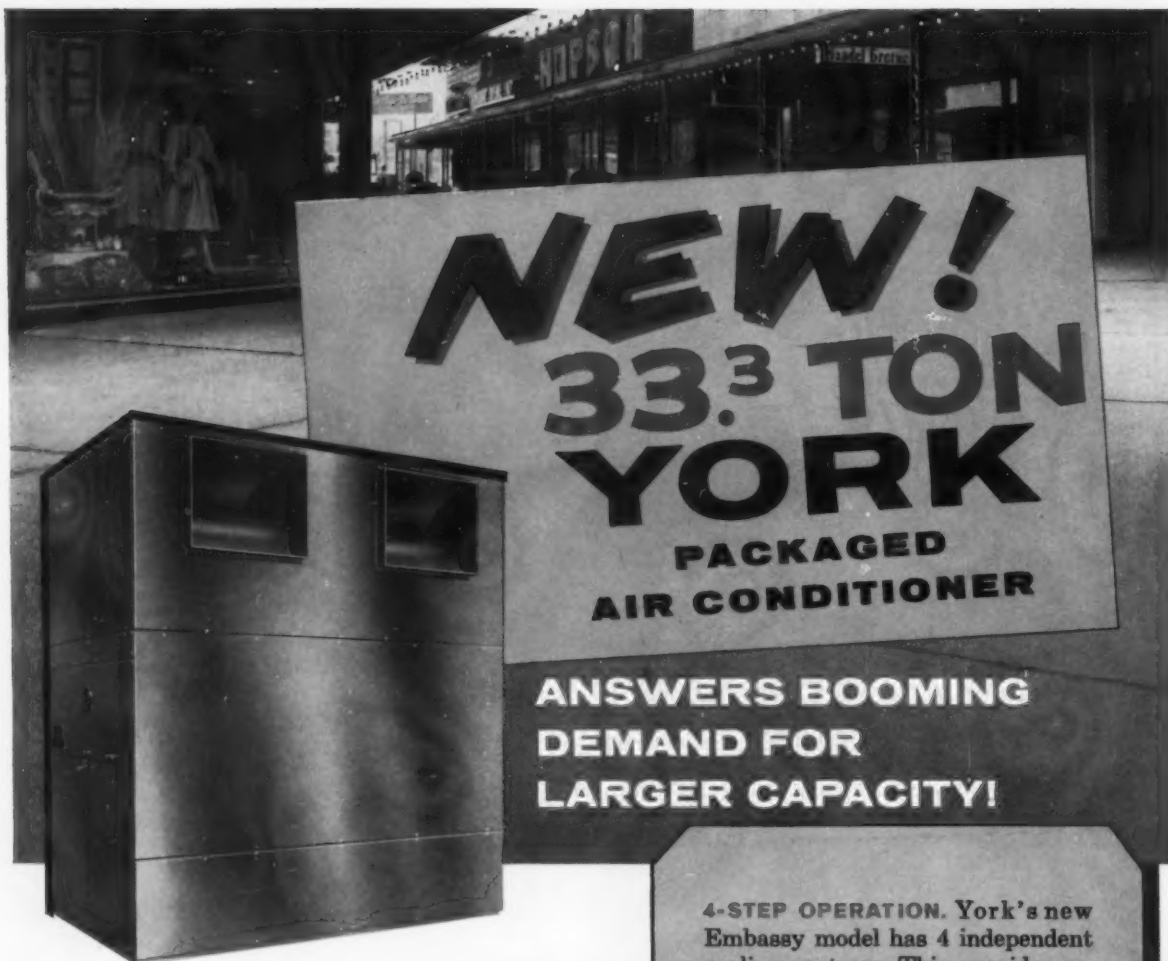
843 KINGSLAND AVE. • ST. LOUIS 5, MO.

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors  
Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

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THE REFRIGERATION & AIRCONDITIONING BUSINESS/MAY 1960

8222



# NEW!

## 33.3 TON

# YORK

### PACKAGED AIR CONDITIONER

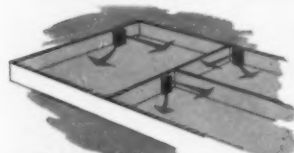
### ANSWERS BOOMING DEMAND FOR LARGER CAPACITY!

#### Easily Adapts to Any Cooling Need!



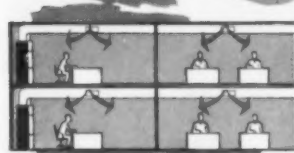
##### Zone Cooling

A single Embassy without ductwork easily cools large open areas.



##### Room by Room

Individual Embassys for large rooms. Central unit with ductwork for small rooms.



##### Floor by Floor

One or more Embassys on each floor with simple ductwork to partitioned areas.

*Other Embassy Models from 3 to 25 ton capacity*

**4-STEP OPERATION.** York's new Embassy model has 4 independent cooling systems. This provides reserve systems which automatically swing into action on hottest days. Customer is able to maintain desired comfort level under varying load requirements...yet pays only for the cooling he needs.

**30% MORE HUMIDITY REMOVAL!** York's Exclusive Cooling Maze Coils force air to twist, turn, and ricochet around staggered tubes and rippled fins. Excess moisture disappears.

**MINIMUM INSTALLATION COST!** Self-contained units can be placed anywhere. No need to overhaul the building or interrupt business operation. Additional units can be added as needed.

**York Puts More Into Every Unit  
So You Get More Out of It**

# YORK

YORK CORP., SUBSIDIARY OF BORG-WARNER CORP.  
GRANTLEY ROAD, YORK, PENNSYLVANIA



BORG-WARNER  
RESEARCH &  
ENGINEERING  
MAKE IT BETTER

Air Conditioning, Heating, Refrigeration and Ice-Making Equipment • Products for Home, Commercial and Industrial Installations

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**COVER FEATURE:** Portable power tools can help refrigeration and airconditioning contractors cut job installation costs, make bids more competitive, and add to profit margins. To find out how, turn to the picture story starting on page 47.

## FEATURES

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assistant editor

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western editor

HENRY LEFER  
eastern editor

MARY MARRACINO  
editorial assistant

ALARIC MAUSSER  
art director

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# Special Offer..

*this valuable Isotron® cylinder truck  
takes the work out of service calls!*

Here it is—from Pennsalt and your ISOTRON refrigerants wholesaler—the handiest time- and labor-saving tool you've ever seen! This specially designed truck rolls smooth and easy on permanently lubricated wheels . . . all-welded tubular steel construction . . . semi-pneumatic tires . . . ready for use. It's ruggedly built and *safer*, too. You can't buy this useful truck anywhere!

Simply save the valuable coupon which is attached to each cylinder of ISOTRON Refrigerants 12, 22, and 114. Present coupons to your ISOTRON wholesaler to get your cylinder truck. There's no limit to the number of trucks you can get, but this offer will be withdrawn when supply is exhausted.

Look for the Cylinder Truck tags on every cylinder of ISOTRON. And notice the factory-sealed valve. It assures you of extra-purity, extra-dryness and guaranteed weight in every ISOTRON cylinder you buy. See your ISOTRON wholesaler tomorrow. ISOTRON Dept. 332, Pennsalt Chemicals Corporation, Three Penn Center, Philadelphia 2, Pa.

## ISOTRON—FIRST IN SERVICE TO YOU

**FIRST** factory-sealed cylinders for your protection

**FIRST** to offer cylinder wrenches

**FIRST** to offer cylinder stands, and now . . .

**FIRST** with the work-saving cylinder truck!

THE KEY TO MODERN LIVING



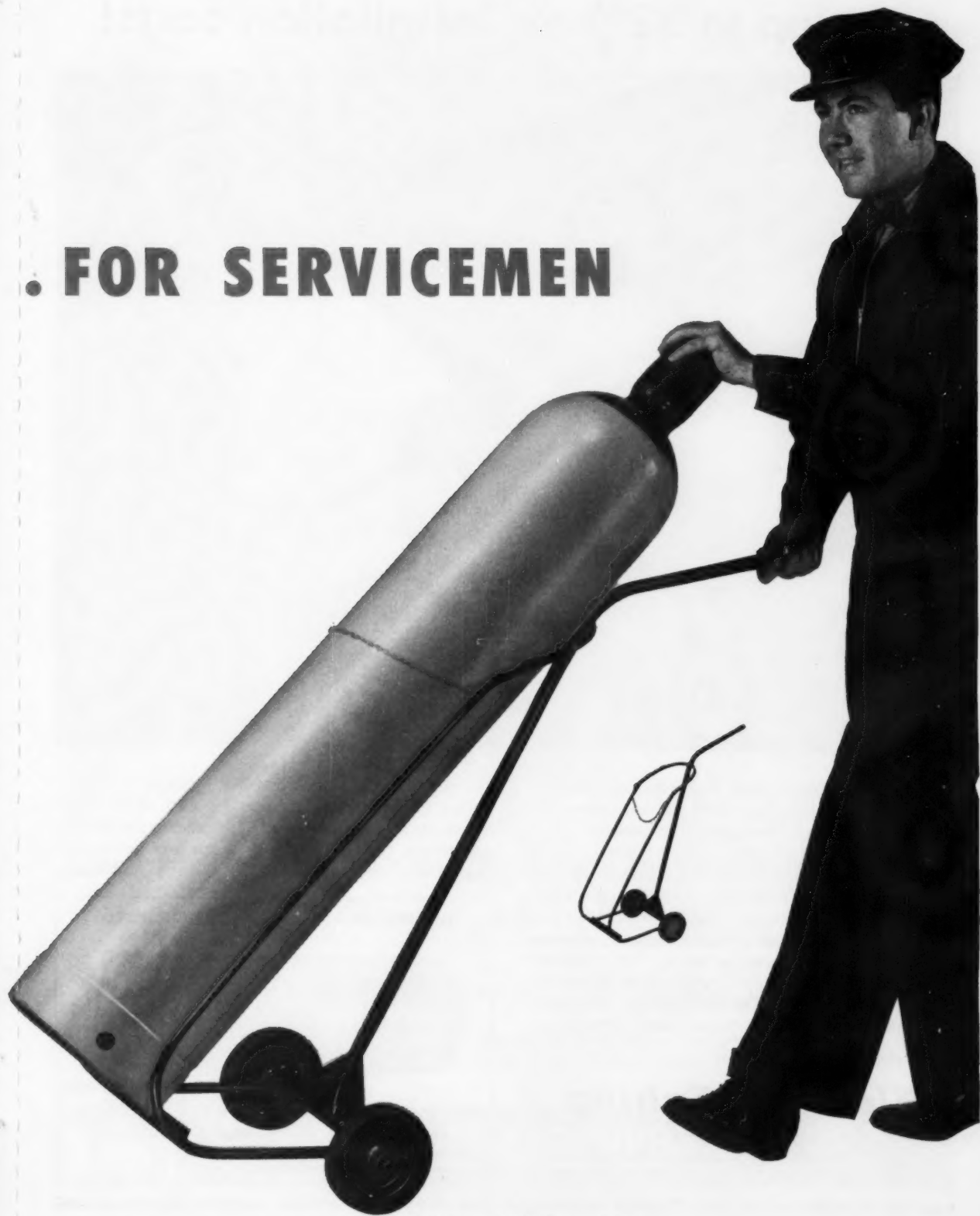
ISOTRON

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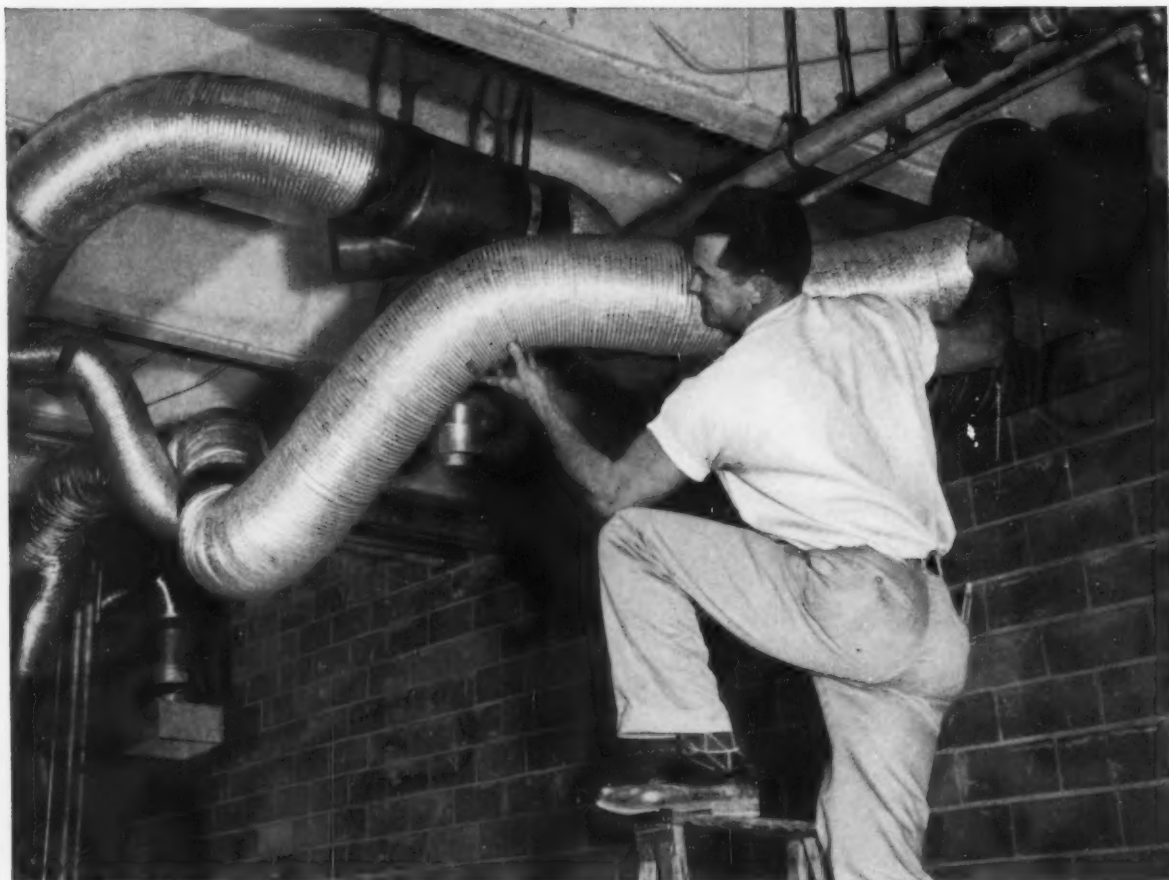




# . FOR SERVICEMEN



# Lightweight, flexible **Thermafex**<sup>®</sup> saves you up to 32% on installation costs!



Here's the new-type flexible duct especially designed for run-outs in both high-pressure and low-pressure air conditioning systems. Thermafex is lightweight . . . easy to carry, handle. Thermafex is highly flexible . . . goes around corners, through tight passages. Result: Thermafex can save you 25% to 32% over rigid and nonrigid metallic duct on installation costs!

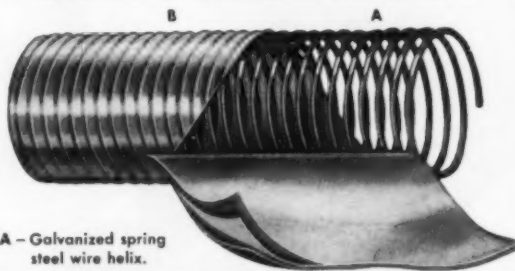
What's more, Thermafex is flame-resistant, moisture-resistant . . . reduces vibration and noise . . . offers great air-flow efficiency. Unlike other nonrigid ducts, Thermafex is permanently bonded to wire reinforcement. Thermafex materials are approved by Underwriters' Laboratories.

## **Flexible Tubing**

**CORPORATION**  
**Guilford, Connecticut**

Thermafex is a product of Flexible Tubing Corporation, leading manufacturer of nonmetallic duct. Write today for the name of the authorized Thermafex representative nearest you. He'll be glad to show you how lightweight, long-wearing Thermafex can save you time and money.

### **THERMAFLEX-A IS PERMANENTLY BONDED!**



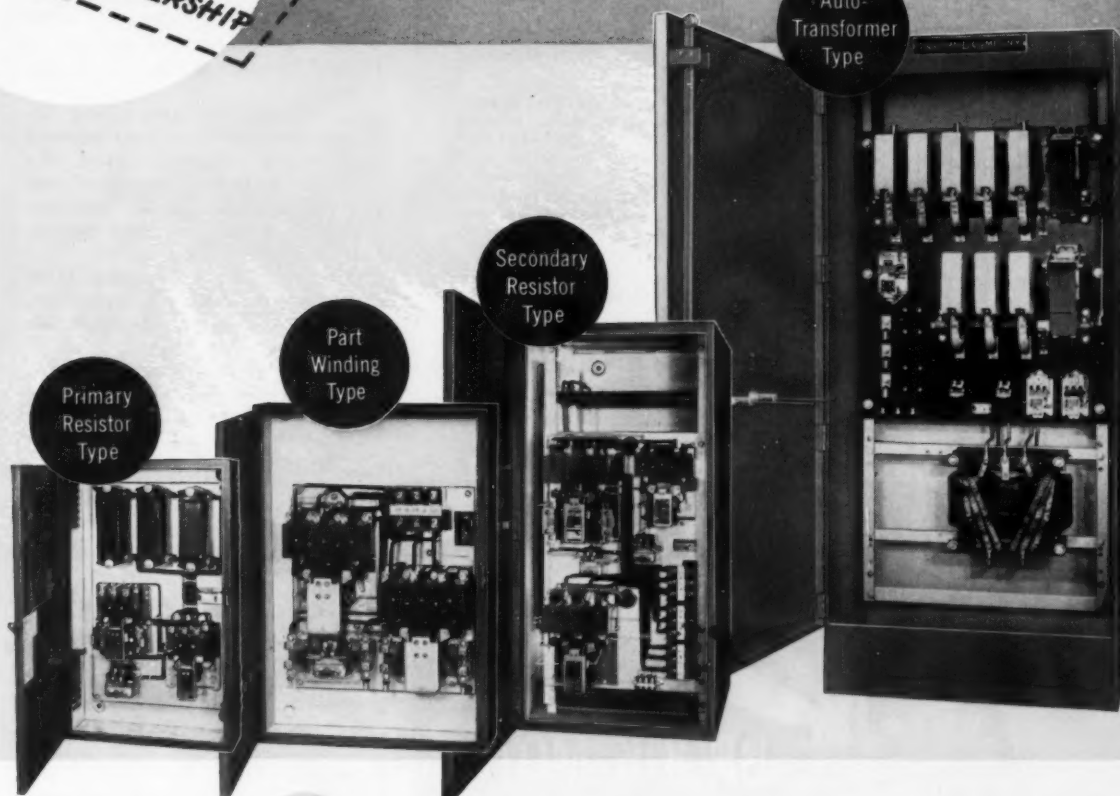
A - Galvanized spring steel wire helix.

B - Three-ply laminate of treated fiber glass between 2 flexible metallic sheets.

THREE SHIPPING POINTS GIVE YOU FAST DELIVERY ON THERMAFLEX: GUILFORD, CONNECTICUT • ANAHEIM, CALIFORNIA • HILLSIDE, ILLINOIS  
Circle No. 6 on Reader Service Card



# SQUARE D *Reduced Voltage* STARTERS



One of these **4** types will meet your requirements... *best*

- Is minimum motor current inrush your primary consideration?
- Is it reduced starting torque? • Or maximum smoothness in acceleration?
- Is cost an important factor?

With these four types Square D can meet any reduced voltage starter requirement—exactly.

*Write* for Reduced Voltage Starter Bulletins. They give complete details.  
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.



## SQUARE D COMPANY

*wherever electricity is distributed and controlled*

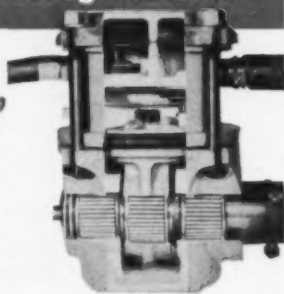
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## ACE, the quality line for air conditioning and refrigeration

### MODEL 77

#### Diaphragm Descaling Acid Pump

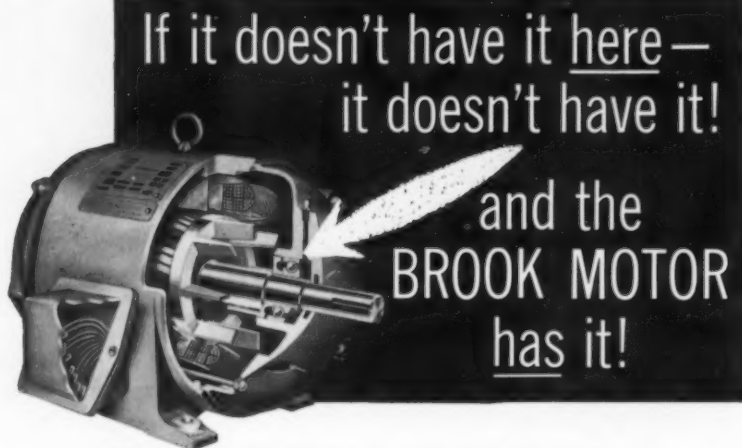
Descaling compounds can't affect this pump! All parts in contact with compounds are completely acid-resistant. Can be supplied as portable unit with pump and motor mounted on sturdy base and with convenient carrying handles.



#### Plus a complete line of centrifugal pumps

... sized to fit your needs. 1/4 H.P. thru 10 H.P. Easy to install and compactly built. Advanced features include exclusive baked-on lifetime finish to enhance appearance and resist corrosion, John Crane mechanical seal, and all-bronze one-piece impellers. Continuous duty motor, 1750 rpm or 3450 rpm.

Orders shipped the SAME DAY received



**M**ANY MOTORS look practically alike on the outside, but it's what is inside that counts. There is no motor with better windings or more ample bearings — few motors compare favorably. Yet, the Brook Motor costs less, because of volume production, modern techniques, distribution in 76 countries and a realistic pricing policy. Brook Motors have established excellent performance records for over 56 years in every industry using a.c. motors. From 1 to 600 H.P. Send for literature.



*world's most respected motor*  
**BROOK MOTOR CORPORATION**  
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Factory Representatives, Warehouses, Dealers in Principal Cities.  
In Canada: Brook Electric Motors of Canada, Ltd.  
250 University Ave., Toronto, Canada

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## Letters

### Tubing Editorial Wins Praise from Wholesalers

#### EDITOR:

Your editorial "Let's Sell Quality in Hard Tubing, Too" [see the *Let's Talk Business* page of our January issue] has put clarity into a confusing situation. The Manufacturers Relations Committee of ARW has been working for the idea of a refrigeration grade of hard tubing.

The need for such tubing has been apparent, and your editorial is timely and well stated. We should like to make reprints of your article available to our membership. May we have your permission?

Speaking for ARW and its Manufacturers Relations Committee, thank you for your support in this matter.

ELMER DAVEY, chairman  
Manufacturers Relations Committee  
Air-Conditioning & Refrigeration Wholesalers

### Likes Degree-Day Method For Heat Pump Prospects

#### EDITOR:

In regard to the article, "The Heat Pump Primer—Part 6," which appeared in the January edition of *THE REFRIGERATION & AIR-CONDITIONING BUSINESS*, Page 77, we feel that this is an excellent explanation of the degree-day method.

Many times we receive requests from potential customers for such information as contained in this fine article.

Please send us 500 copies of the reprint of this article.

D. P. D'AGOSTINO  
Typhoon Heat Pump Co.  
Tampa, Fla.

### Wants More Information On Plastic Carbonator

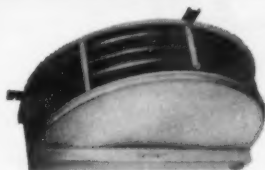
#### EDITOR:

Quite some time ago, roughly about a year and a half, I came across an ad in *THE REFRIGERATION & AIR-CONDITIONING BUSINESS* magazine about a small plastic

*Continued on page 122*



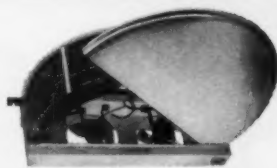
# TENNEY



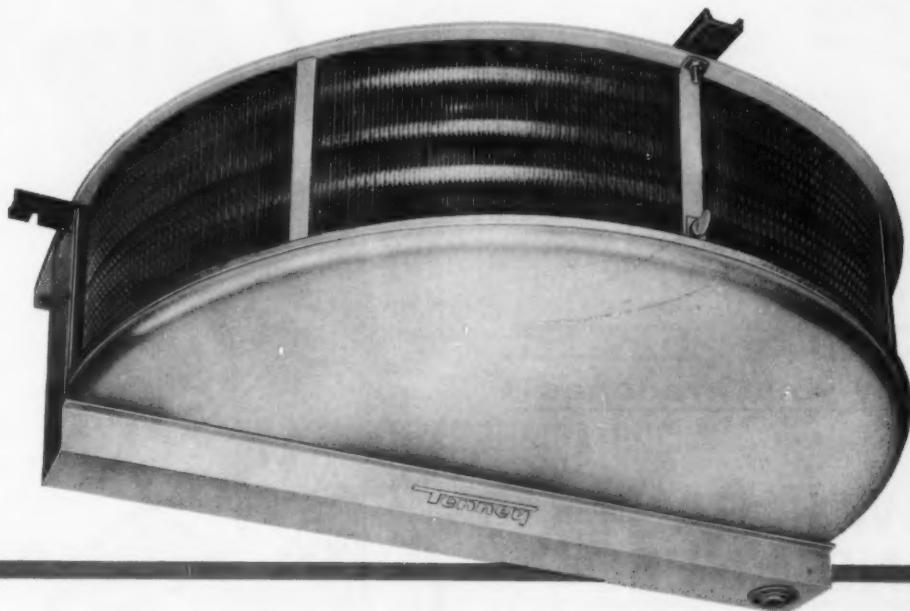
*half round...*



*twin fanned...*



*easy to service*



## Tenney TW and TWF unit coolers with ALL-ALUMINUM HOUSINGS!

More cooling power per square inch and most convenient installation with Tenney's TW and TWF unit coolers than with any other comparable units—and now they're built of lightweight, rustproof aluminum. True half round design insures maximum air distribution. It hugs up tight against the ceiling and its unique design allows maximum product storage. Service is so simple—flick off a thumb screw and the entire

unit is open, with all parts within easy reach. You never disturb existing refrigeration, electrical or water drain lines! And in case of emergency, one of the unit's two fan-and-motor combinations can maintain safe temperatures until help arrives. Standard filters are optional on both units. Write for literature and technical data on these new all-aluminum TW and TWF unit coolers today.



Write for Bulletin 104-54

Engineers and Manufacturers  
of Refrigeration and  
Environmental Equipment

**Tenney**  
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND BALTIMORE, MARYLAND

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THE REFRIGERATION & AIRCONDITIONING BUSINESS/MAY 1960

Friends of  
**U CON IKE:**  
throw away your wrenches!\*

## NOW...EASY HANDWHEEL CYLINDER VALVES

...exclusive with  
**Ucon** brand refrigerants



*First Time Ever!* Here's a handy new idea in refrigerant cylinders: a handwheel valve you simply turn to open, turn to close. No wrenches, no stripped threads. And, no leakage problems, because these new UCON Brand Refrigerant valves are made without packing. There's nothing to adjust or maintain! They're yours on UCON Refrigerant cylinders—at no increase in cost. *Ask Your Wholesaler Now* about UCON Refrigerants—first with conveniences for refrigerant users.

\* Or keep them if you like—they make great paper weights!



U CON Brand Refrigerants are manufactured by  
**UNION CARBIDE CHEMICALS COMPANY**—Division of Union Carbide Corporation  
30 East 42nd St., New York 17, N. Y.  
Exclusive Sales Agent to Air Conditioning and Refrigeration Wholesalers  
**ANSUL CHEMICAL COMPANY**, Marinette, Wisconsin

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MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS



**DEMAND IS GREAT... EVERYONE IS BUYING  
THESE EXTRA VALUE PRODUCTS**



**"DRI-VUE"**  
Moisture-Liquid  
Indicators

**"DRI-COR"**  
Filter-Driers  
Molded Core

**"GOLDEN BANTAM"**  
Diaphragm Packless  
Valves

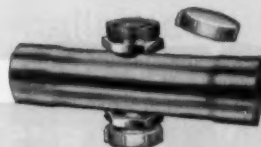
### **"DRI-VUE" INDICATOR PORT**

Actually Spells "WET" or "DRY" with element  
Color Variation—Largest Visible Element Area.



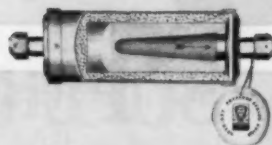
### **"DRI-VUE" INDICATORS**

Double Port Moisture-Liquid Indicators,  
Large O.D.S. Sizes. Triple Sealed Ports.



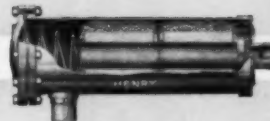
### **"DRI-COR" FILTER-DRIERS**

Two Stage Drying; Molded Core and  
Granular Desiccant. Also-dry Processed.



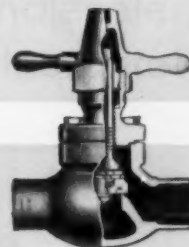
### **"DRI-COR" Cartridge DRIERS**

Molded Filter Core and Granular Desiccant.  
Split Second Cartridge Installation.



### **SHUT-OFF VALVES**

Packless and Packed with Flanged and Integral  
Connections. Wide Range of Sizes and Types.



Only Henry offers you this complete variety of types and sizes, from 1/4" flare packless to 4 1/2" O.D.S. packed Wing Cap valves, from 1 ton sealed type to 165 ton cartridge type filter-driers and 1/4" flare single port to 2 1/2" O.D.S. double port moisture indicators.

# **HENRY VALVE COMPANY**

For Refrigeration, Air Conditioning and Industrial Applications

MELROSE PARK, ILLINOIS, U.S.A. CABLE: HEVALCO, MELROSE PARK, ILL.

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In the busy summer months ahead...

# INSIST ON **genetron**<sup>®</sup> SUPER-DRY REFRIGERANTS

...and be sure of the best!

**genetron 11** ORANGE LABEL  $\text{CCl}_3\text{F}$   
TRICHLOROMONOFUOROMETHANE

**genetron 12** WHITE LABEL  $\text{CCl}_2\text{F}_2$   
DICHLORODIFLUOROMETHANE

**genetron 22** GREEN LABEL  $\text{CHClF}_2$   
MONOCHLORODIFLUOROMETHANE

**genetron 113** PURPLE LABEL  $\text{C}_2\text{Cl}_3\text{F}_3$   
TRICHLOROTRIFLUOROETHANE

**genetron 114** BLUE LABEL  $\text{C}_2\text{Cl}_2\text{F}_4$   
DICHLOROTETRAFLUOROETHANE



**g**enetron super-dry refrigerants are universally accepted for use as original or replacement charge because their tight production standards consistently **e**xceed industry specifications for purity and dryness. Refrigeration service engineers, original equipment manufacturers and wholesalers throughout the **n**ation know they can always rely on "genetron" for dependable, trouble-free performance. "Genetron" super-dry refrigerants are available from wholesalers **e**verywhere. Their high quality is backed up by fast, dependable service—including prompt return of deposits on empty cylinders—and extensive **t**echnical help. More than a million copies of the "genetron service tip of the month" are mailed out every year. Pressure-enthalpy charts are available for **r**efrigeration service engineers to use in their work. Special sound slide films on solving refrigeration and air-conditioning problems are shown regularly to **o**riginal equipment manufacturers, servicemen, contractors, trade schools and universities. Whenever you order modern refrigerants, remember the **n**ame—"genetron"! Do as so many others are doing. Use the very best! When you see your wholesaler, always insist on "genetron" super-dry refrigerants!



**GENERAL CHEMICAL DIVISION**

40 Rector Street, New York 6, N.Y.

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## ABOUT

## People

Milwaukee Electric Tool Corp. has announced the appointment of **William Brunson** as its district representative covering Tennessee, Mississippi, Kentucky, and the southern counties of Indiana. Brunson previously worked in sales for a southern heating and air-conditioning wholesaler.



**Millard Mayer**, chairman of the board of Koch Refrigerators, Inc. died recently. He was appointed chairman of the board in 1953. He was a past president of the Commercial Refrigerator Manufacturers Association.

Newly elected director and vice president of operations for Calumet & Hecla, Inc. is **D. W. Blend**. In the newly created post, Blend will have charge of all company operating facilities including Wolverine Tube Div. Blend joined Wolverine Tube in 1932, and has been with Calumet & Hecla since its acquisition of Wolverine in 1942.



Air Filter has announced the appointment of **Robert Zahn** as vice president and general manager. His new position will include special work in the developing of new products.

**J.M.L. Joslin** has been named manager of executive development and training for Borg-Warner Corp. Since 1954 Joslin has served as a vice president of the company's York Div.

Two personnel appointments have been made by Mueller Brass Co. **L. C. Lucas** has been named sales manager of the Grand Rapids, Mich., district. Since 1957, Lucas has been a sales representative in the Melrose Park, Ill., office. **Thomas E. Rickelman** has been assigned to



Lucas



Rickelman

the Melrose office as a sales representative. He joined the firm in 1957 and has been working in the sales department of the company's main plant in Port Huron, Mich.

Warren Webster & Co., Inc., has appointed **Irving G. Brennan** product sales manager of airconditioning. Brennan has been associated with the firm for 19 years in the engineering and sales divisions.

White-Rodgers Co. has announced the relocation of **F. J. Maney** from the Des Moines,



Maney



Tettambel

Iowa, area to become New York district manager. Replacing Maney as Des Moines district manager is **Harold E. Tettambel**.

Revcor, Inc. has announced the appointment of **Charles Wilson** as national sales manager.

Chrysler Airtemp has announced two new appointments in the packaged heating and



Denton



Hilborn

cooling department. **William H. Denton** has been named manager, sales planning, commercial



**SEVEN DISTRIBUTORS** met with executives of Chrysler Corporation's Airtemp Div. in the first of three meetings scheduled for 1960 to discuss future planning and solve mutual problems. Front row, left to right, are **Marty Rothman**, M. Rothman & Co., Cliffside Park, N.J.; **I. C. Goldstein**, Globe, Inc., Minneapolis, Minn.; and **Stan H. Kelly**, H & C Supply Co., Akron, Ohio. Standing are, left to right, **Sterling Nicholson**, Southenair Co., Durham, N.C.; **George C. Webster**, Wilson Supply Co., Inc., Washington, D.C.; **Joseph B. Ogden**, vice president of sales for Airtemp; **Roy R. Matthews**, Royalair Distributors, Dallas, Tex.; and **Sydney Anderson**, manager of Chrysler's Los Angeles branch.

there's a

# Crystal Tips

automatic ice maker  
for every ice user!

AMUSEMENT PARKS • BAKERS • BASEBALL PARKS • BARS • BOTTLERS • BUTCHERS  
CAFETERIAS • CATERING SERVICES • CAMPS • COLLEGES • CONCESSIONS  
CONVENTION HALLS • DAIRIES • DEPARTMENT STORES • DRIVE-IN  
THEATRES • FOOD MARKETS • FISH PROCESSORS • HOMES  
HOTELS • INSTITUTIONS • LIQUOR STORES • LUNCH COUNTERS • MOTELS  
MEAT PROCESSORS • NIGHT CLUBS • POST EXCHANGES • RACE TRACKS  
REFRESHMENT STANDS • RESORTS • RESTAURANTS • SERVICE CLUBS • SCHOOLS  
SERVICE STATIONS • SPORTS ARENAS • THEATRES • TRUCKERS • VARIETY STORES



Today, you can sell more of the ice maker market with Crystal Tips than with any other single brand, because only Crystal Tips Ice Makers give ice users a choice of 3 types of ice from 2 types of machines. With Crystal Tips, you not only cover the market more thoroughly, but you also do it with *fewer models* because of Crystal Tips now famous 2-in-1 ice making feature! Fewer models means lower inventories, fewer parts to stock, less overall investment for you to make without sacrificing sales! Get *all* the profit-making facts about Crystal Tips, write, wire or call today!

*First name in automatic ice makers*



*A division of McQuay, Inc.*

## AMERICAN AUTOMATIC ICE MACHINE CO.

1675 Park Avenue N.W. • Faribault, Minnesota • Telephone: EDison 4-5501

ON DISPLAY — NATIONAL RESTAURANT SHOW  
VISIT BOOTH NUMBERS D-98-100-102

Circle No. 14 on Reader Service Card

products, and H. M. Hilburn has been appointed manager, sales planning, residential products.

Two promotions to sales office manager have been made by Trane Co. William G. Barnard will head the Des Moines, Iowa, office, and Thomas Shimanski will be in charge in Madison and La Crosse, Wisc. Barnard, in the Des Moines office since 1950, replaces Tracy Johnson who retired after 45 years with

the firm. Shimanski takes over for his father, V. E. Shimanski who retired this year after 34 years of service. Young Shimanski came to Trane in 1948.

Aden H. Maben has been named assistant advertising manager for Dunham-Bush, Inc. after serving five years in the sales department. William W. Cross has been assigned to cover the Seattle, Wash., area as a sales engineer.

Raoul D. Elder has been appointed sales manager of Aurora Pump Div., New York Air Brake Co., succeeding John M. Bals who was promoted to general manager. Since joining the company in 1953, Elder has been export and district sales manager.

Two new executive appointments have been announced by Electro-Air Cleaner Co., Inc. Henry C. Fry has been placed in charge of residential sales in



Fry



Haeck

Western Pennsylvania, and George J. Haeck will handle industrial and commercial sales in Western Pennsylvania and Northern West Virginia.

Ernst A. Freund has been retained by American Furnace Co., as consultant to its airconditioning engineering division. He will assist chief refrigeration engineer Robert E. Callan in development and promotion of new electrical airconditioning systems.

Richard E. Wolff has been appointed sales representative for Pittsburgh Corning Corp. Wolff will headquarter at the firm's office in Philadelphia, Pa.

Robert W. Gaines has joined the engineering sales staff of Water Service Laboratories, Inc. He is assigned to the New York City office. Gaines previously was with Air and Refrigeration Corp. and Worthington Corp.

S. J. Seibert has been appointed manager, airconditioning department, Amana Refrigeration,

*Continued on page 118*



**Speed Service and Get a Cleaner, Drier System!**

**Kinney**

**PORTABLE HIGH VACUUM PUMPS—**

A better job—faster... that means completely satisfied customers and more service per man per day. It also means that with modern equipment your service operations turn in the profits you're now losing.

These KINNEY Portable units enable you to LEAK TEST... EVACUATE... DEHYDRATE Freon Refrigerating and Air Conditioning Systems in the shop or on location. The KC-3R, displacing 3 cfm at 1135 rpm, is especially suited to systems of 10 tons or less. The KC-8R, with free air displacement of 8 cfm at 1000 rpm, is the Pump for systems exceeding 10 tons. Each of these KINNEY Pumps includes: Bourdon type Vacuum Gage, automatic Vacuum breaker in case of power failure, male fitting for connecting to copper tube suction line, 10 ft. plug-in cord and snap switch and carrier handle.

**KINNEY VACUUM DIVISION**  
**THE NEW YORK AIR BRAKE COMPANY**

3618E WASHINGTON STREET • BOSTON 30 • MASS.



Write for Bulletin  
No. 4570.1 and price  
information today!

Please send me Bulletin 4570.1 describing KINNEY Portable High Vacuum Refrigeration Service Pumps.

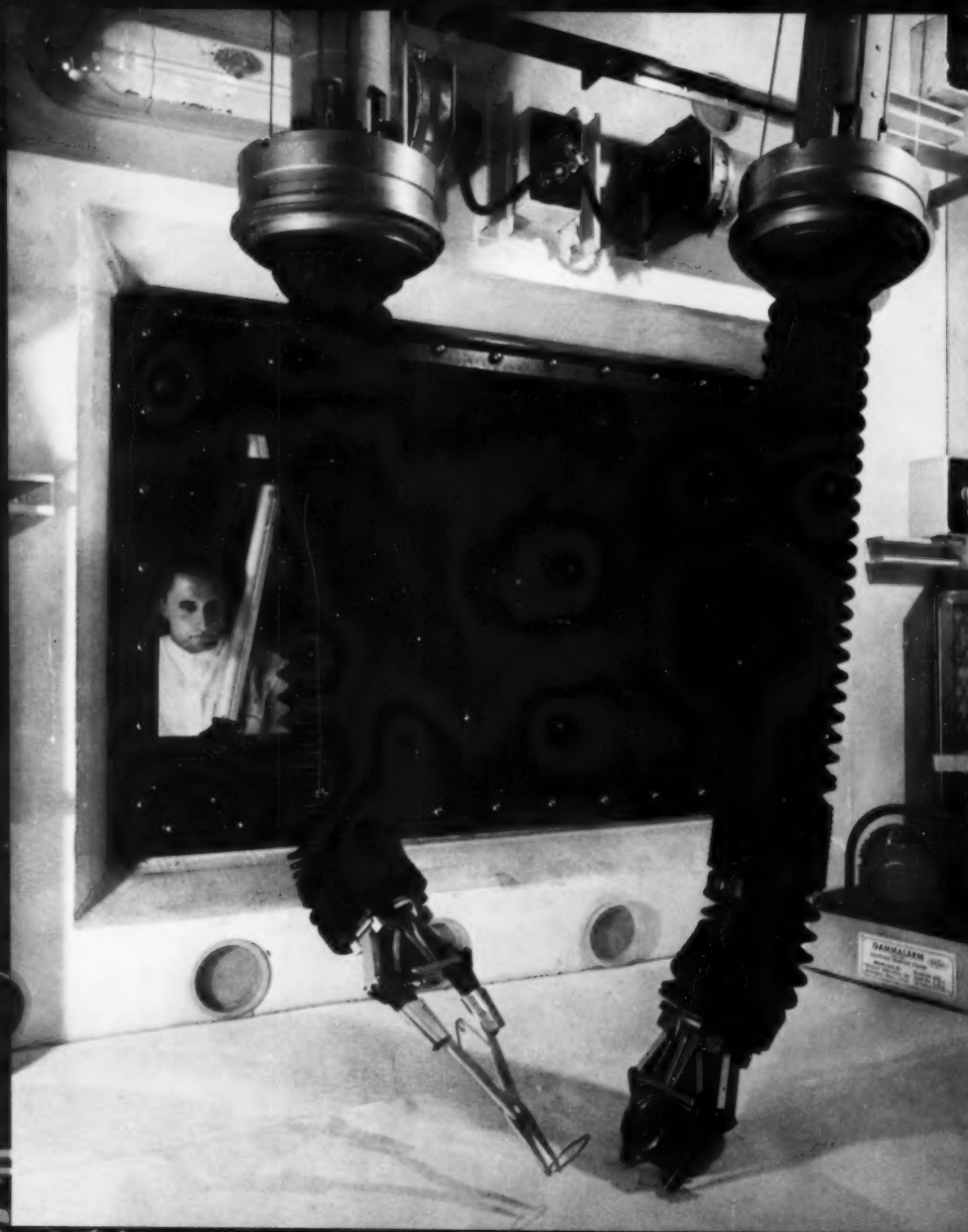
Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle No. 15 on Reader Service Card

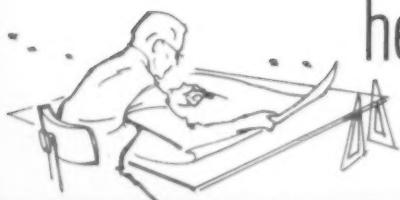


# DUNHAM-BUSH

## "GOES CRITICAL"



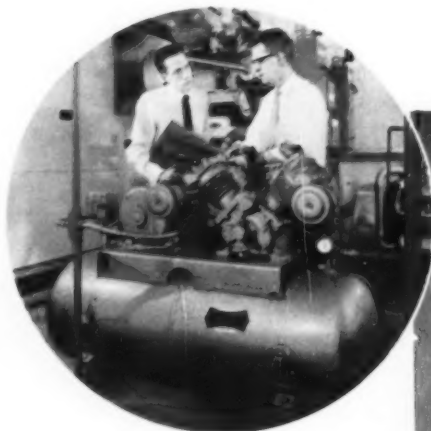
at Picker Research Center, where the handling of  
"hot" isotopes demands dependable, safe, efficient control of air movement and temperature



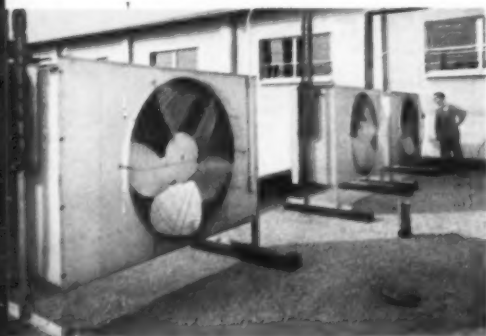
# heating and air conditioning a radioisotope laboratory...



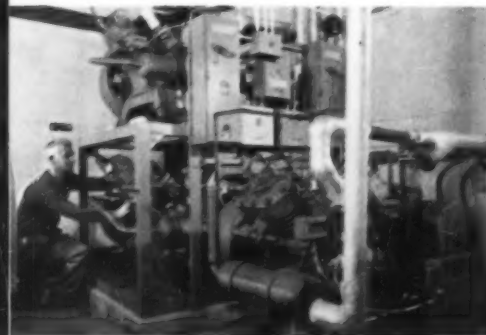
Outside the Center's million-curie test cell, looking in on the fascinating "finger" operation of the Master-Slave Manipulators as they encapsulate a radioactive material. Failure of the air system here would seriously, perhaps disastrously, impair the protective function of the cell's \$10,000, 61" thick glass and zinc bromide window. Part of the cell's enormous 40-ton access door of steel and concrete can be seen in the background.



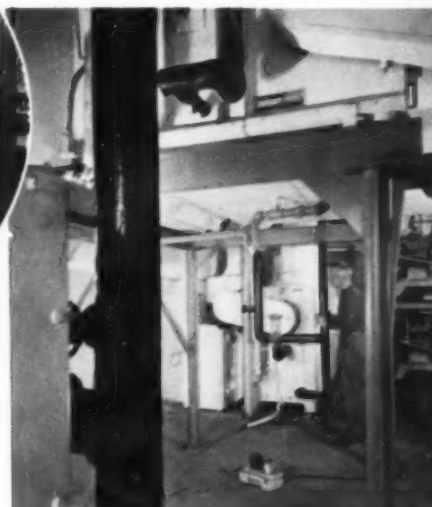
A dependable Brunner Air Compressor provides pressure for the air-operated tools in the Center's second-floor machine shop.



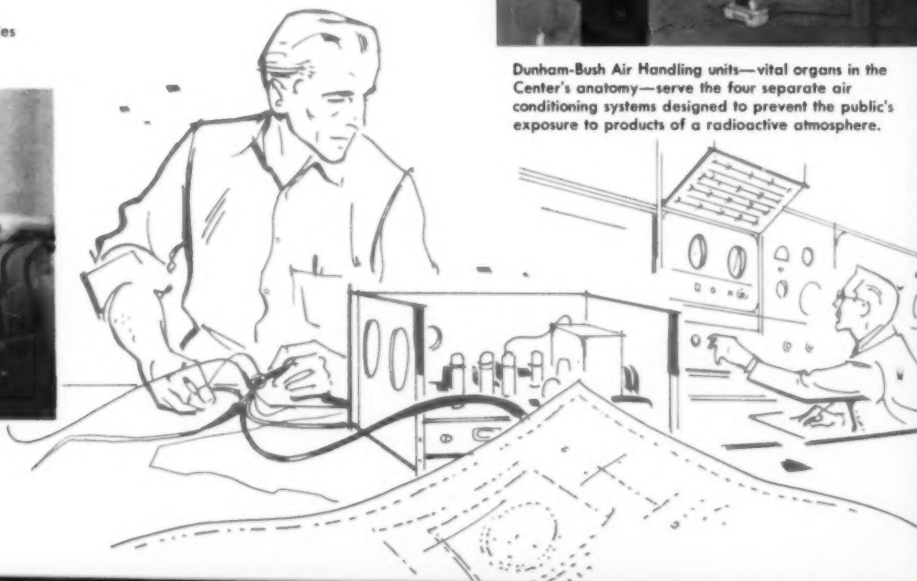
Roof-Top Dunham-Bush Air Cooled Condensers enable the Center's air conditioning systems to function without water; and problems of excessive water impurities and their disposal naturally are avoided.



Heat-X Heat Interchangers and Brunner Compressors are integral parts of the Center's all Dunham-Bush air conditioning system.



Dunham-Bush Air Handling units—vital organs in the Center's anatomy—serve the four separate air conditioning systems designed to prevent the public's exposure to products of a radioactive atmosphere.



# the vital responsibility of a single source



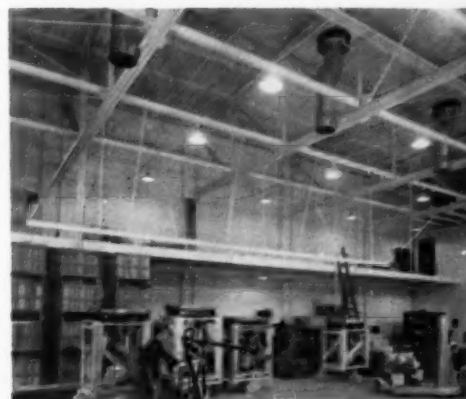
In tastefully appointed surroundings made atmospherically comfortable by Dunham-Bush air conditioning, one of the Center's receptionists greets visitors.



In winter, Dunham-Bush Cabinet Convectors with the manual adjustment feature warm the Center's non-air conditioned stairwells.



Dunham-Bush Thermo Vector Radiation sharply reduces downdrafts, and circulates warm air to every corner of the Center's engineering department.



Dunham-Bush Unit Heaters warm the Center's busy warehouse in winter. They also are used to circulate air for summertime comfort. Extension tubes funnel the air downward, past structural elements.

Architect & Consulting Engineer—McGeorge, Hargrett and Associates—Cleveland, Ohio  
Mechanical Contractor—The Feldman Brothers Company—Cleveland, Ohio  
Wholesaler—Cleveland Hermetic & Supply Company—Cleveland, Ohio

# DUNHAM-BUSH... satisfying the common and uncommon heating and cooling demands of our time



Belle Chasse High School, Belle Chasse, Louisiana, is served by these Dunham-Bush products: Air Handling units, Comfort Conditioners, Wall Jet Unit Heaters, Electric Defrost Low Temperature units, Baseboard Radiation, Cabinet Convectors, and Unit Heaters.

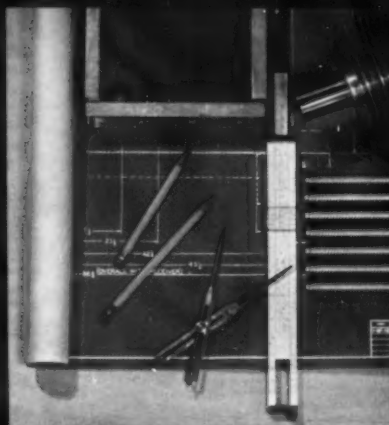


Cardinal Glennon Memorial Hospital for Children, St. Louis, Missouri, uses Dunham-Bush Vacuum and Condensation Pumps, Convectors, Radiator Traps, F & T Traps and Strainers, and Unit Heaters.



And at IBM's new Engineering Laboratory, Kingston, New York, the following Dunham-Bush equipment is installed: Finned Tube Radiation, Unit Heaters, F & T Traps and Strainers, Bucket Traps and Strainers, Air Handling units, Convectors, and Low and High Pressure steam specialties.

To specifiers, buyers, and users of Dunham-Bush equipment, the reassuring significance of the Picker installation is simply that whatever the demands for performance proficiency, this single source responsibility meets them with the same high-quality equipment... equipment that always ensures top-drawer efficiency and safety.



Pictorially expressed above are the ingredients of the directed effort made by our engineering and production team in the interests of public and private comfort, safety, and productivity.

Call on Dunham-Bush for responsible performance of any heating or cooling job.

## DUNHAM-BUSH

### Dunham-Bush, Inc.

179 SOUTH STREET • WEST HARTFORD, 10 • CONNECTICUT, U.S.A.

MICHIGAN CITY, INDIANA • MARSHALLTOWN, IOWA • RIVERSIDE, CALIFORNIA

#### SUBSIDIARIES

**heat-x**

HEAT-X, INC.  
BREWSTER, N.Y.

**BRUNNER**

THE BRUNNER CO.  
WEST HARTFORD, CONN.

DUNHAM-BUSH (CANADA), LTD.  
TORONTO, CANADA

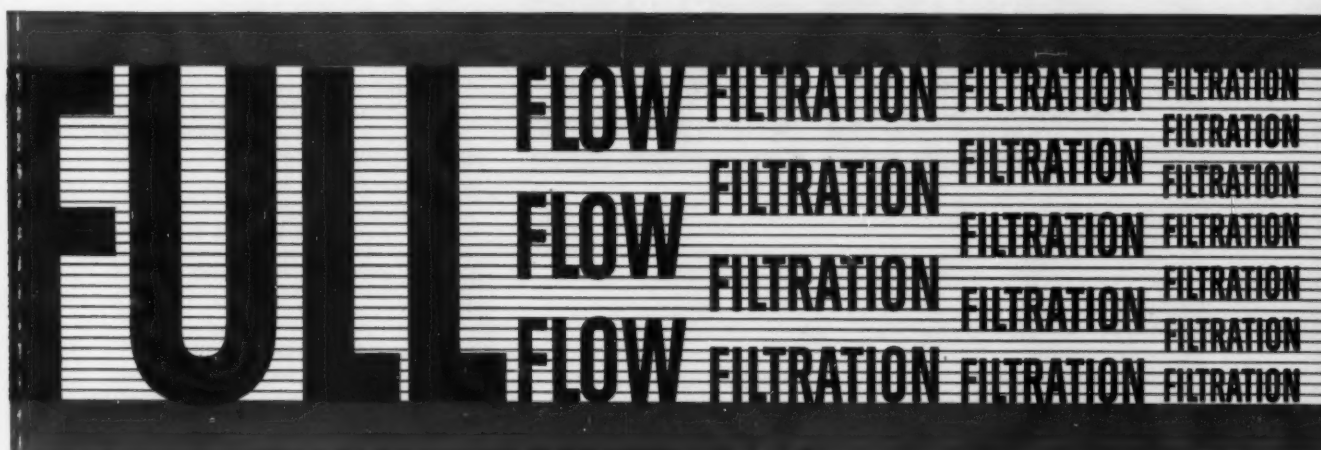
DUNHAM-BUSH, LTD.  
PORTSMOUTH, ENGLAND

BRUNNER CORPORATION (CANADA) LTD.  
PORT HOPE, ONTARIO



For full-flow filtration *plus* the lowest dew point you require—specify Davison PA-400.

For filtration of very low micron-sized contaminants plus moisture reduction to less than 10 ppm in seconds—specify Davison PA-400.



with  
Davison PA-400

For the same high no-bypass filtering efficiency achieved in the food industry with granular beds, plus a desiccant that cannot soften, swell or disintegrate—specify Davison PA-400.

In fact, for the highest filtering efficiency plus the best drying action you can buy—insist on Davison PA-400 in your dehydrators. Write Dept. 26210 for full information and technical bulletin.

**W.R. GRACE & CO.**  
DAVISON CHEMICAL DIVISION  
BALTIMORE 3, MARYLAND



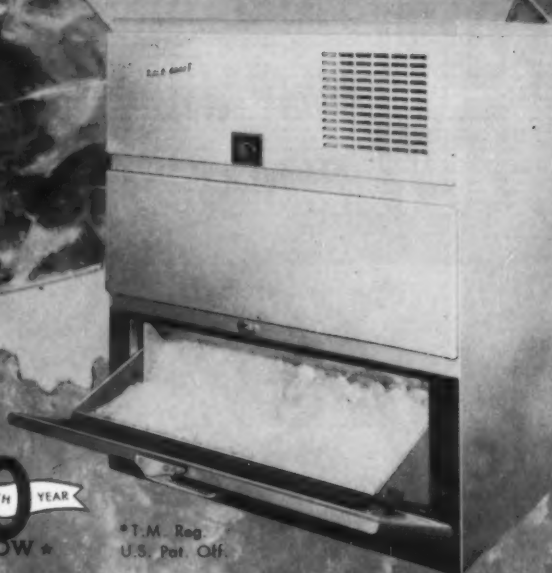
**MR. UNIFLO:**  
your  
customers  
need **BOTH!**

**PURE  
ICE CUBES**

Perfect cubes  
solid, hard, clean

**PURE  
CRUSHED ICE**

A choice of five  
sizes of crushed ice








**40**  
OUR FORTIETH YEAR  
★ UNIFLOW ★

\*T.M. Reg.  
U.S. Pat. Off.

*Only* **KOLD-DRAFT** gives you perfect  
— ICE CUBES and pure CRUSHED ICE!

Some franchises still available for a limited number of territories... write  
**KOLD-DRAFT DIVISION**  
**UNIFLOW MFG. CO., ERIE, PA.**  
... The World's Most Complete Line of Refrigeration Products

Other Fine KOLD-DRAFT Products

Beverage Coolers Draft Beer Dispensers Soft Drink Dispensers Walk-In Coolers & Freezers Water Coolers

## Calendar of Industry Events

**May 1-3, 1960**

Northamerican Heating & Air-  
conditioning Wholesalers, Inc.  
(Semi-annual meeting)  
Roosevelt Hotel  
New Orleans, La.

**May 19-21, 1960**

Refrigeration Research Foundation  
(Annual Meeting)  
Denver, Colo.

**May 22-26, 1960**

National Association of Refrigerated  
Warehouses (Annual Meeting)  
Denver, Colo.

**June 6-10, 1960**

Institute of Boiler & Radiator  
Manufacturers (Annual Meeting)  
Seaview Country Club  
Absecon, N.J.

**June 13-15, 1960**

American Society of Heating,  
Refrigerating and Air-Condition-  
ing Engineers (Annual Meeting)  
Vancouver, B.C., Canada

**June 20-22, 1960**

American Society of Refrigerating  
Engineers  
(Annual Meeting)  
Royal York Hotel  
Toronto, Canada

**October 10-12, 1960**

American Gas Association (Annual  
Convention)  
Atlantic City, N.J.

**October 23-26, 1960**

National Frozen Food Distributors  
Association (Annual Meeting)  
Statler Hotel  
New York City

**October 28-November 2, 1960**

Air Conditioning & Refrigeration  
Wholesalers (Annual Conven-  
tion)  
Aboard S. S. Hanseatic  
Sailing from Port Everglades, Fla.

**October 31-November 4**

The Institute of Boiler & Radiator  
Manufacturers (Semi-Annual  
Meeting)  
Seaview Country Club  
Absecon, N.J.



valve with a time-saving "twist"

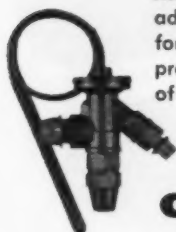
lets you dial pressure limit to make

each A-P Model 209 a dozen valves in one

Virtually any thermostatic expansion valve you call for is likely to be "right in your parts kit" when you carry A-P Model 209's. They adapt in seconds to so many requirements — pressure limit is adjustable at twist of dial to the exact value called for by the compressor manufacturer. No need to waste time chasing makes and types when these superior valves give your customers the safest overload protection available!

Exclusive pressure-limit control *instantly* presets from 10 to 55# gauge. Superheat setting can be varied from 2° to 20°F, if desired. Valve is designed to operate in any position, at any ambient temperature. *Nominal capacities:* 1/4 through 1 1/2 tons R-12 . . . 1/4 through 3 tons R-22. Inlet connection sizes: 1/4-inch SAE, or 3/8 x 1/4 inch SAE. Ask for Model 209 valves at your A-P Controls wholesaler.

**Model 207** thermostatic expansion valves offer outstanding advantages and quality recognized throughout industry. Performance similar to Model 209 valves, but without adjustable pressure limit. Can be furnished externally equalized. Choice of charges for different needs.



**CONTROLS COMPANY**



*Creative Controls for industry*

**OF AMERICA**

HEATING AND AIR CONDITIONING DIVISION

2418 N. 32nd Street, Milwaukee 10, Wis. • Cooksville, Ontario • Zug, Switzerland

Circle No. 19 on Reader Service Card

THE REFRIGERATION & AIRCONDITIONING BUSINESS/MAY 1960

Whether by automobile or movement of gases and liquids by pipeline, today's trend in transportation is toward efficiency and economy. **HUSKY** steel welding fittings are designed to provide both. In fact, a welded system using **HUSKY** fittings can now be installed for no more than a threaded system. Or, looking at it another way, you can save as much as 85% per fitting over the welded fittings now in use! **HUSKY** fittings are ideal for all Schedule 40 piping and fully comply with A.S.T.M. A234 specification... perform admirably at much lower cost. \* **ASK FOR FULL PARTICULARS FROM YOUR WHOLESALER...OR WRITE NIBCO INC., Dept. KS-6905 Elkhart, Ind.**



**Husky fittings mean**

# compact transportation, too!



\* Current jobs where **HUSKY FITTINGS** are being used include the following: **CANDLESTICK PARK STADIUM**, San Francisco, California; **JEFFERSON DAVIS HOSPITAL**, Houston, Texas; **WILLIAM WINLOCK MILLER HIGH SCHOOL**, Olympia, Washington; **MERCHANTS NATIONAL BANK AND TRUST COMPANY**, Indianapolis, Indiana; **CIVIL AERONAUTICS ADMINISTRATION CONTROL CENTER**, Fremont, California.

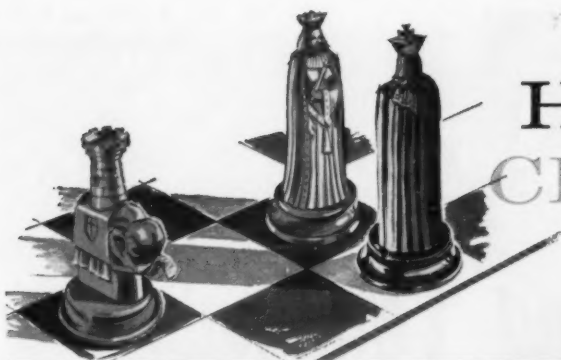


SEE NIBCO PRODUCTS • BOOTH 401 NAPC SHOW • CLEVELAND • JUNE 19-22

Circle No. 21 on Reader Service Card

MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS





## Here's how to CHECKMATE trouble...



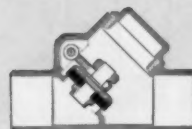
COPPER TO COPPER:  
3/4" through 2" sizes.  
125 SWP/200 WOG  
or 150 SWP/300 WOG

F.S.P.S. TO F.S.P.S.:  
3/4" through 2" sizes.  
125 SWP/200 WOG  
or 150 SWP/300 WOG

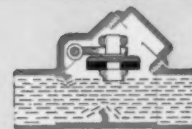
### Specify Nibco Y-pattern check valves

NIBCO check valves are rated by users as *the most dependable*. Made for heavy duty, their unique "Y" design provides quick action in opening or closing. Each valve is marked and individually tested for pressures designated. They meet exacting standards of Federal specifications, and are priced no higher than valves of old-style design.

AVAILABLE THROUGH WHOLESALERS NATIONWIDE



**GRAVITY ACTION** of new Y-pattern check valve assures positive closing the instant flow ceases.



**FULL FLOW** is not restricted when valve is open. Disc is entirely out of path of water-way when under pressure.



**POSITIVE SEATING** assured for every use because valve disc can be brass, composition steam, or BUNA "N" for water, oil or gas.



**VERTICAL OR HORIZONTAL**, this Y-pattern check valve is equally effective. Positive closure in either position.



# NIBCO

NIBCO INC., Department X-6905  
Elkhart, Indiana

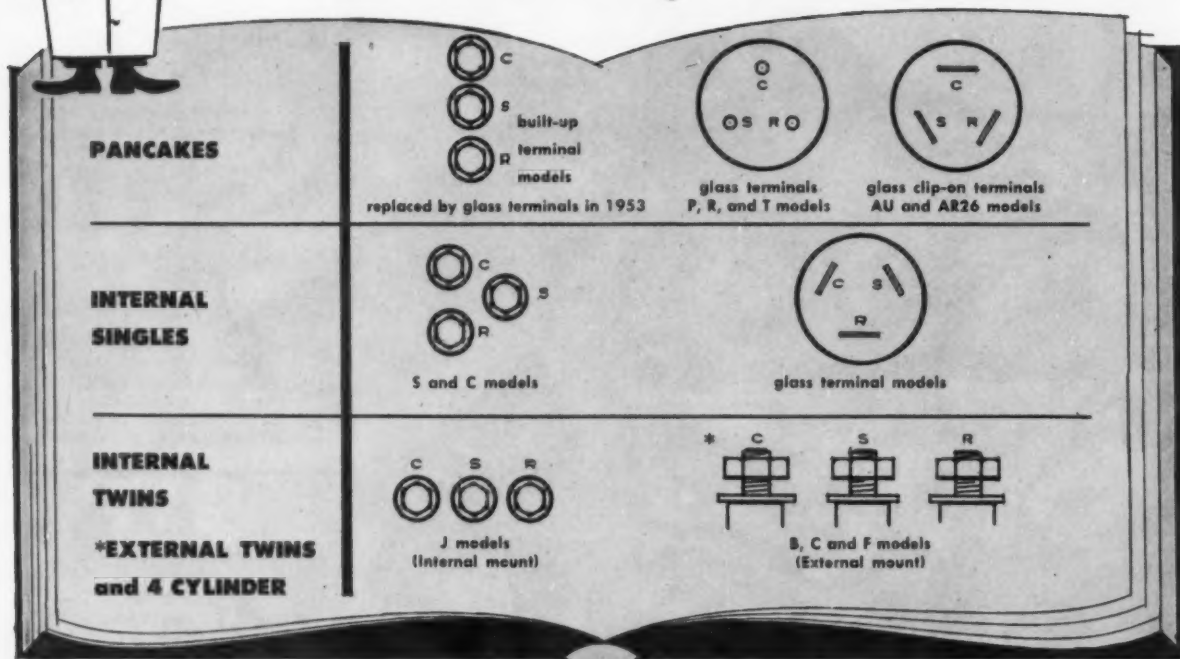
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Circle No. 20 on Reader Service Card



## Herman Hermetic Hints

# ON "Reading" Terminals



### know your terminals — it can save you costly wiring errors!

Avoid the possibility of costly and embarrassing motor burn-out by memorizing the location of terminals on any type of Tecumseh compressor. The diagrams shown represent each of the seven terminal types used. The letters C, S, and R refer to Tecumseh terminal order nomenclature; COMMON, START, and RUN. This wiring order never varies!

By "reading" terminals we are referring to a simple method of guaranteeing this correct wiring order. If you "read" from left to right in parallel lines, as you would read a book, terminals on every

Tecumseh compressor model will assume their proper order.

Horizontal lines can be ruled through the above terminals to illustrate this foolproof formula for you. Reading as a book — line for line, left to right, top to bottom — always maintain this correct order; COMMON, START, RUN. The only exception to this system is the now obsolete "H" model compressors. Terminal order on "H" models reads horizontally from left to right — Run, Start, Common. While we believe that this formula should guarantee correct wiring order, consult your authorized Tecumseh wholesaler in case of doubt.



The Leader Serving Leaders in the Air Conditioning and Refrigeration Industries

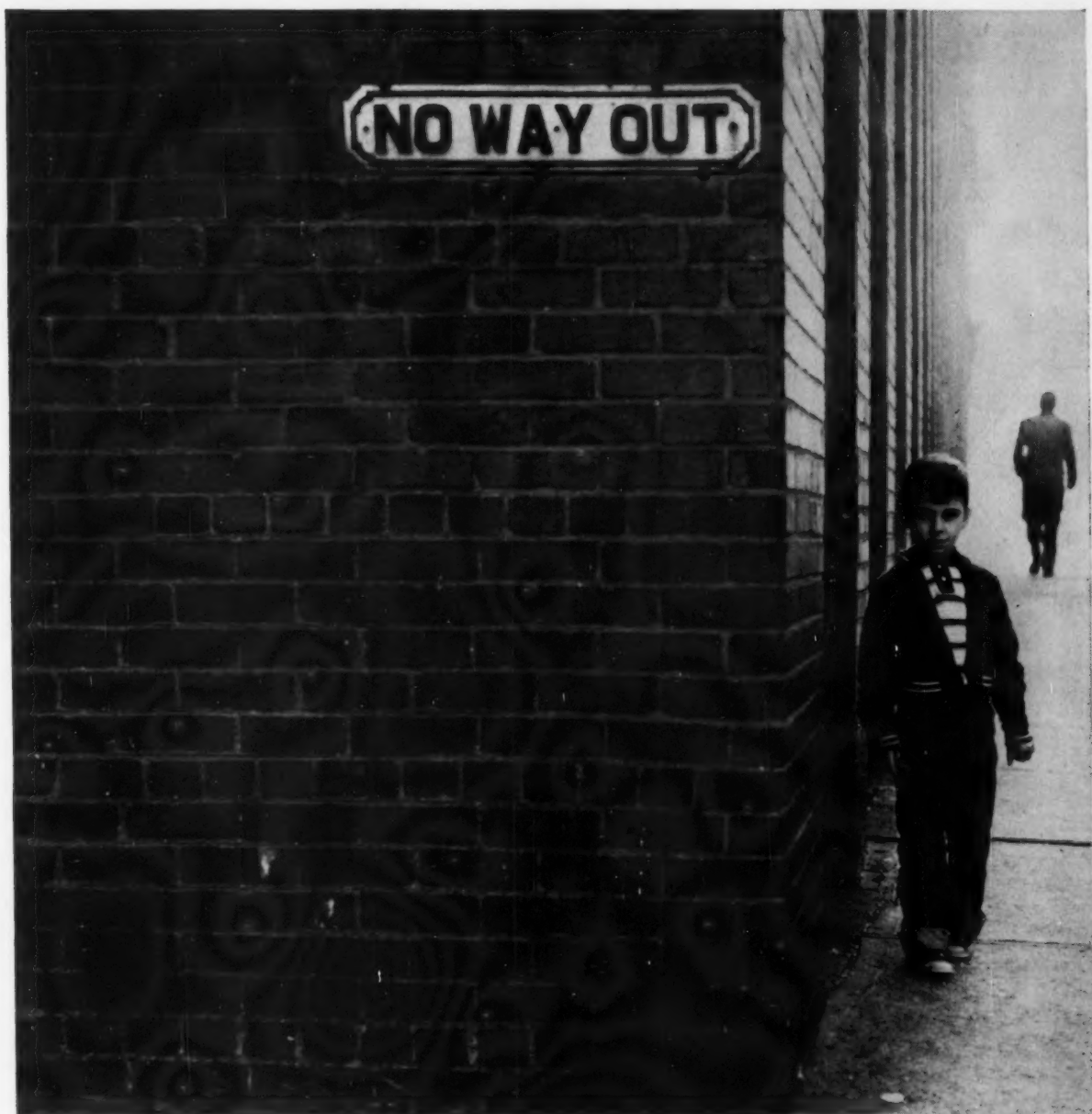
## TECUMSEH PRODUCTS COMPANY

MARION, OHIO

TECUMSEH, MICHIGAN

EXPORT DEPT: P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

CANADA: Tecumseh Products of Canada Limited, 1667 Dundas St., London, Ontario.



## ...OR IS THERE?

**Leukemia** now gives its young victims only months of life. But there is hope for those with this form of cancer. That hope is research.

Research has already extended the lives of many leukemia patients by months and even years. Research alone can find a way to stop this cancer of the blood-forming tissues once it has mysteriously begun. And every day that a leukemia patient lives allows

science one more day to find a cure—or even a new way to extend his life a little longer.

Every year leukemia kills 2,000 children and 10,000 adults, and the incidence is rising. Every year the American Cancer Society allocates more and more money to research specifically related to leukemia. Last year, it allotted nearly \$1,000,000 to such research, out of a total research expenditure of

about \$12,000,000. Much more money is needed this year. The more you contribute, the faster research on leukemia and other forms of cancer will progress. Guard your family! Fight cancer with a checkup and a check! Send your contribution to "Cancer," in care of your local post office.

**AMERICAN CANCER SOCIETY**



## Two Of The Most Valuable Tools In The Industry



**SAVES MONEY—TIME—TROUBLE**

Two Men Can Easily Raise  
Any Type of Equipment

To

- ROOF      • CEILING
- ATTIC     • TRANSOM

Erect  
A 4,000  
Lb. Unit  
In One  
Hour



**"HOIST-IT" ELEVATES**  
Air Conditioners  
Roof Equipment  
Air Cooled Condensers  
Blowers and Heaters  
Refrigeration Blowers  
Window Units  
Cooling Towers

"HOIST-IT" Elevating  
A 2,600 lb. Condenser to Roof



The Only  
Complete  
PORTABLE  
Unit  
On the  
Market



For De-Scaling and Cleaning  
**All Types of Condensers**

Coil Tubes      Coil Surfaces  
Evap Condensers      Blowers  
Air Conditioning Equipment

### EQUIPMENT CONSISTS OF

Acid-Proof Pump and Tank  
Teflon Bearings—Titanium Shaft—Neoprene Impeller  
1/3 H.P. Non-overloading Motor  
Neoprene Hoses — Spray and Suction Nozzles  
Rubber Tired Cart

HASTINGS AIR CONTROL, Inc., OMAHA 5, NEBR.  
Please send complete information and prices—  
☐ "HOIST-IT"      ☐ "CLEAN-IT"

Firm  
Street  
City  
State

**Write for Literature and Prices**  
**HASTINGS AIR CONTROL Inc.**  
Dept. R  
OMAHA 5, NEBR.



## News IN REVIEW...

A coast-to-coast network of franchised distributors and dealers keynotes the marketing policy of Welbilt Air Conditioning & Heating Corp., newly-formed subsidiary of Welbilt Corp. The firm's line will be sold exclusively through franchised outlets. Each distributor will have protection of sales rights within its territory.

Two more groups have offered support and cooperation to the national Better Heating-Cooling Council's program to boost hydronics. Latest support comes from joint industry program committee, Plumbing and Pipe Fitting Industry and United Association, national labor organization of steamfitting and pipefitting trades. BHC's nationwide drive is promoting increased sales of piped heating and cooling in all markets, buildings and types of construction.

Canadian manufacture of automatic control devices for Ranco Inc. will be handled by Ranco Controls, Canada, Ltd., of Toronto. Initially, the Toronto plant will assemble component parts only for the firm's "Type A" controls. A. M. Hoover is president of the newly-formed subsidiary.

All unitary airconditioning equipment purchased by the U.S. Air Force in the future must bear the Air-Conditioning and Refrigeration Institute Seal of Certification. . . . A \$2 million project is being planned by Chase Brass & Copper Co. for its tube mill processing facilities in Waterbury, Conn. When completed, Chase will have an automatic tube rolling operation providing flexibility required for producing varying sizes and many alloys.

Two new buildings have been completed at the Marble Falls, Tex., facilities of Mathes Co., Div. of Glen Alden Corp. One structure houses executive and administrative offices; the other adds 65,000 sq.ft. to existing manufacturing area. . . . Expansion of its research and development division of its engineering department has been announced by Lau Blower Co., Dayton, Ohio. New product development and improvement of current ones is the key to the move.

A Los Angeles factory branch has been opened by Typhoon Air Conditioning Div., Hupp Corp., serving the airconditioning and heat pump market of Southern California. The branch, at 2206 Hill St., will serve 13 counties from Bakersfield to the Mexican border and eastward to Arizona. . . . Hupp Corp. has made a cash purchase of the manual valve operator business of Jones Machinery Div., Hewitt-Robins, Inc. Operations have been moved to Hupp's aviation division in Chicago. Purchase included tooling, inventory, and engineering designs.

## News IN REVIEW

An additional 16,000-sq. ft. of floor space will be ready when construction is completed on a new building for Acme Electric Corp. in Cuba, N.Y. This structure will consolidate research and engineering into a central unit, where complete laboratory and testing facilities will be available. . . . More storage area is being added to warehouse space for Victory Metal Mfg. Corp. in Plymouth Meeting, Pa. Increased volume necessitated this addition of 11,000-sq.ft.

Two complete central lines of heat pumps and airconditioners are now being produced by The Forston Co., Houston, Tex. Residential models range from 2 to 5 tons; commercial from 2 to 15. The firm recently moved into a new plant at 2117-19 Judiway St. . . . A sales increase and continued expansion has been forecast for the hydronic heating industry in 1960. R. S. Doherty, president of the national Better Heating-Cooling Council, predicted at least a 10% gain in residential equipment over 1959, with continued strength in the commercial, institutional and industrial field.

A commodity products division has been formed by Small Tube Products, Inc. John A. Murnane has been appointed sales manager. Previously, the firm processed tube for industrial users only. . . . A 9-week spring sales promotion began March 21 at Airtemp Div., Chrysler Corp. First-day orders from 17 district managers were for \$10,100,000 worth of equipment. Employees in the firm's shipping department were placed on overtime to get out orders within 30 days.

Warehouse and office space has been doubled by Acre Service in the Dallas, Tex., Brook Hollow industrial district, with the construction of a new building at 8400 Sovereign Row. Acre, which specializes in warranty hermetic system repairs of room airconditioners, commercial and residential airconditioning systems, also occupies space at 9100 Ambassador Row. . . . A 40% jump in production capacity will be made when planned construction is completed this fall by Marsh Instrument Div., Colorado Oil & Gas Corp. This is the third major addition since 1950.

An Italian affiliate of Rheem Mfg. Co. has been licensed by Fedders Corp. to manufacture the company's line of airconditioners. Production is expected to begin by June 1960 at Rheem and Rheem Safim, Milan.

Recold Corp. can offer one-day service for airconditioning and refrigeration products to most of the east coast from its new manufacturing facilities in Columbus, Ohio. Also located in Columbus are all eastern warehousing operations, thus providing direct supply for the east and most midwestern states. . . . Construction is underway on a 49,000-sq. ft. addition to Recold's Los Angeles, Calif., enlarging total building area to almost 170,000-sq. ft., including offices and warehouses. Company officials estimate that modernization plans and additions should double the firm's production capacity.

# YOUR BEST BUY! The NEW

# M

# FILTER-DRIERS



New design—New construction provide MAXIMUM Drying, Filtering and Flow Capacity to give longer-lasting protection



Featuring the exclusive "MICROWALL" FILTER ENCLOSURE

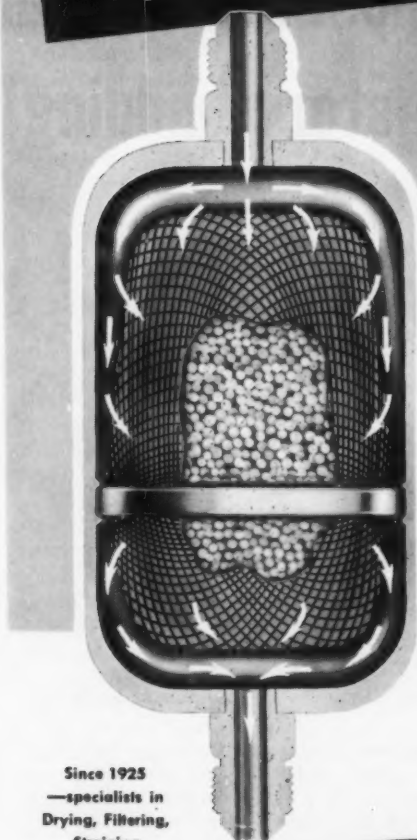


Completely encases the desiccant to prevent solid foreign matter from entering desiccant chamber or system. No coating or clogging of desiccant to reduce drying efficiency. "Microwall" is specially molded, reinforced with wire screen, permanently locked, to provide low-micron filtration at both inlet and outlet.

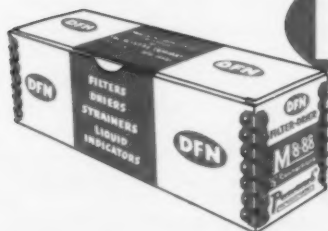
—PLUS **Permasorb®**  
WITH MOLECULAR SIEVE

for maximum moisture and acid removal

This original, time-tested blend of Molecular Sieves and Activated Alumina in hard bead form provides large drying area and low resistance to flow, without powdering or channeling. Uses no binders—provides 100% drying effectiveness.



Since 1925  
—specialists in  
Drying, Filtering,  
Straining



Examine—compare—buy the New "M" Filter-Driers at your wholesaler.

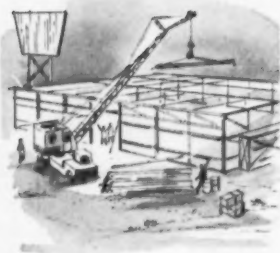
WRITE US FOR DETAILED BULLETIN D-5



## THE McINTIRE COMPANY

Livingston, New Jersey

Circle No. 25 on Reader Service Card



One-story construction?



Floor space valuable?



Don't want long runs of ductwork?

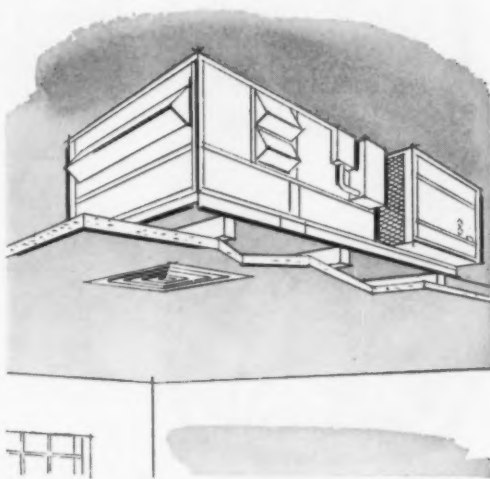
## 9 times out of 10 this is the most economical way to heat and cool a one-story building!

With the new Carrier Commercial Weathermaker\*, year-round air conditioning can be designed and installed more economically than ever in one-story commercial or industrial buildings. It isn't necessary to give up an inch of valuable floor space, because this Weathermaker unit installs on the roof. And it isn't necessary to install expensive and unsightly ductwork, because the unit connects directly to a ceiling air grille. Notice the application here.

This unit is also designed to install with a minimum of time and trouble. It needs no water, no refrigeration piping, no charging with a refrigerant. One or more units can be installed as required, and with the following capacities: 7.5 tons of cooling and 200,000 Btus of heat . . . or 10 tons and 250,000 Btus. What's more, the motor-compressor is protected by a 5-year warranty.

For complete details about this Carrier Commercial Weathermaker, call the Carrier distributor near you. He's listed in the Yellow Pages. Or write Carrier Corporation, Syracuse 1, N. Y.

\*Reg. U. S. Pat. Off.



This Carrier 48B Commercial Weathermaker puts both the heating and cooling plant in the most economical of locations—the roof! It is supplied ready for fast one-unit installation. It is factory charged with refrigerant, equipped with refrigeration piping and quickly connected through the roof to a ceiling air grille.

BETTER AIR CONDITIONING FOR EVERYBODY

EVERYWHERE



Circle No. 26 on Reader Service Card

MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS



as we see it...

by Jim McCallum

● Best way to extend the shelf life of candy is by refrigeration. That's what members of the National Confectioners Association and the American Association of Candy Technologists were told recently by Dr. J. G. Woodroof of the Georgia Experiment Station.

Ten years of study, he reported, show that lowering the storage temperature of candy by at least 18 degrees does more to keep it in good condition than adding antioxidants, humectants, zein-type coatings, or mold inhibitors.

He made it clear that while there are no critical storage temperatures for various types of candies, tests generally have shown that the lower the temperature the longer the storage life.

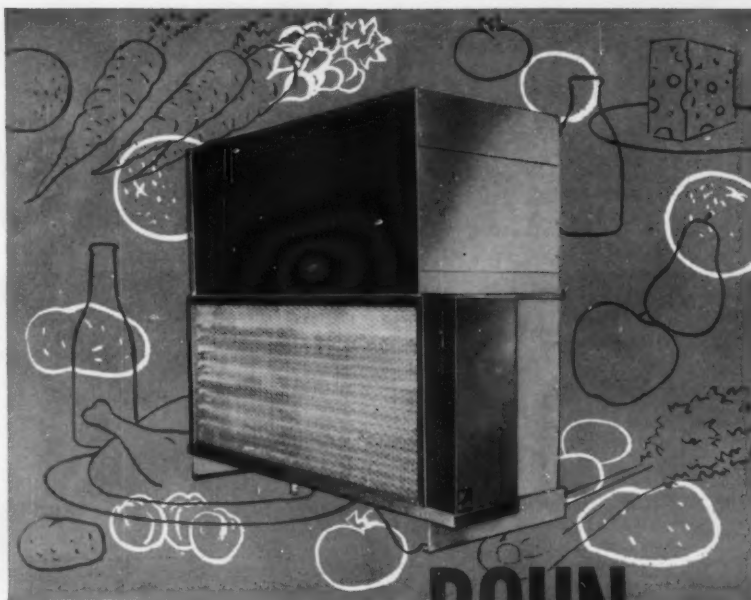
● Hollywood has borrowed much from Broadway, but in the matter of customer comfort the movie industry can teach the legitimate theater a solid lesson.

You have to look hard nowadays to find a motion picture house without some form of mechanically refrigerated air-conditioning. But more than half of New York's legitimate theaters are still depending upon ice to keep playgoers comfortable in warm weather.

Substantial inroads are being made in this market (witness the 7-in-1 Shubert installation described in the January issue of THE REFRIGERATION & AIR-CONDITIONING BUSINESS), but there's still plenty of opportunity here for aggressive air-conditioning salesmanship.

And one of the best bits of sales ammunition is the matter of operating costs. For example, the recently conditioned St. James theater used to use up to

Continued on page 129



## New series of **BOHN** PRODUCT COOLERS

Designed for flexibility in mounting

Planned for *above-freezing* applications, the new Bohn Model PC Product Coolers provide dependable protection where temperature must be kept within critical limits.

Three sizes...each for vertical or horizontal mounting...all feature:

- T. D. ratings based on entering air temperatures—not average box temperatures
- Sectional construction for ease in handling and passage through openings
- Grained aluminum cabinet
- Galvanized steel frame with protective coating of Bohn-Kote
- Removable panels for ease in servicing
- Plate type aluminum fins with full collars on expanded copper tubes
- Blower bearings—sealed ball bearing type
- Motor—resilient-base, ball bearing type mounted inside unit on adjustable base

### CAPACITY DATA

Model Number		BTU/Hr. 10° T. D.	CFM	Shp. Wgt. Approx.
* Vertical	Horizontal			
5800PCV-1	5800PCH-1	58,000	8,300	1,000 lbs.
7500PCV-1	7500PCH-1	75,000	10,600	1,200 lbs.
9200PCV-1	9200PCH-1	92,000	13,100	1,400 lbs.

\* Discharge ducts available for vertical models.

SEE YOUR WHOLESALE for latest catalogs and price lists on BOHN's complete line of unit coolers and low temperature units.

# BOHN

Buy the known line... the **BOHN** line  
ALUMINUM & BRASS CORPORATION  
Danville Division • Danville, Illinois

# All your answers are in the bag with **PYRAMID**



## **Amprobe Test-Master Kit keeps all equipment right at hand...handsomely.**

Truly the sign of the professional, this rugged, good-looking, genuine cowhide case contains all the equipment *you* need to do all your electrical testing jobs with precision and accuracy.

Compact, neat and sturdy, the Test-Master Kit is specially designed to hold any one of the famous Amprobe RS models, the Amprobe Deca-Tran, the Amprobe Energizer and the Test-Master has a separate covered section to hold your small hand tools easily, within reach.

*The Test-Master comes in two models: **TM33** contains the world-famous Amprobe RS-3 snap-around volt-ammeter-ohmmeter: 5 current ranges, 3 voltage ranges. Amprobe Deca-Tran: Extends amperage reading 10x, as high as 1200 amps. Amprobe Energizer: Multiplies sensitivity of any Amprobe 10x for readings on small appliance and fractional h.p. motors. **\$84.50***

**TM11** contains the Amprobe RS-1, economy snap-around volt-ammeter. Amprobe Deca-Tran and Amprobe Energizer. **\$71.75**

*The Amprobe Test-Master Kit, RS-3, Deca-Tran and Energizer are all products of*  
**PYRAMID INSTRUMENT CORPORATION, LYNBROOK, N.Y. WORLD'S LARGEST MANUFACTURER OF SNAP-AROUND TEST INSTRUMENTS**  
Circle No. 28 on Reader Service Card



FLASH! EXTRA! STOP PRESS!!

Wolverine Tube has just introduced

Wolverine ACR (Type L) copper

tube in 20' lengths...cleaned,

marked and individually sealed

expressly for Refrigeration

and Air Conditioning use.

### **Now! Wolverine ACR (Type L) tube made expressly for Air Conditioning and Refrigeration use**

That's right . . . another Wolverine "FIRST". Now . . . for the first time . . . air conditioning and refrigeration service engineers can obtain standard, straight length copper tube that is cleaned and then sealed to keep that way.

It's marked Wolverine ACR (Type L) and it is available in 20-foot lengths in sizes from 1/4" nominal O.D. to 4" nominal O.D. It is available now from wholesalers across the country.

With the introduction of ACR (Type L) Wolverine Tube offers the industry's most complete line of copper tube expressly manufactured for refrigeration and air conditioning use. You can buy clean, dry and sealed copper refrigeration service tube in both 50' rolls . . . in the familiar Roll-O-Tube® carton\* . . . and now in straight lengths, too!

Ask for Wolverine ACR (Type L) tube by name . . . and BUY FROM YOUR WHOLESALER.

*\*New size range—1/8" O.D.—1-3/8" O.D.*



**WOLVERINE TUBE**  
DIVISION OF

**Calumet & Hecla, Inc.**

DEPT. A, 17228 SOUTHFIELD RD., ALLEN PARK, MICH.

Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

Circle No. 29 on Reader Service Card

THESE NEW



RESIDENTIAL  
EVAPORATORS

# Make Air Conditioning **SING!**



*Now available with aluminum cabinets*

*Coil section slides out for easy access*

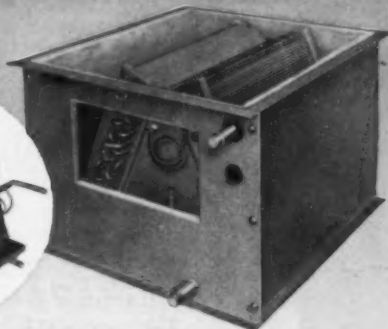
**T**hese McQuay residential evaporators make air conditioning really **SING** in quiet, trouble-free operation. The combination of McQuay quality construction and engineering know-how and experience creates a harmony of cooling and dehumidifying that provides the finest, most dependable residential air conditioning available.

A wide range of vertical and horizontal air flow evaporators from 2 to 7½ tons nominal capacities available to fill the needs of any size home in any climate. Contact your nearest McQuay wholesaler, or write to McQuay, Inc., 1643 Broadway Street N. E., Minneapolis 13, Minnesota.



The McQuay Horizontal Air Flow Residential Evaporator is available in 2, 3, 4, 5 and 7½ tons nominal capacities. It is designed for mounting in horizontal duct work of warm air furnace systems, and is extremely compact and thoroughly insulated with fiber glass. A service panel and space for internal valve mounting is provided. Drain pan for collection of coil condensate is standard equipment.

McQuay  
Means Quality



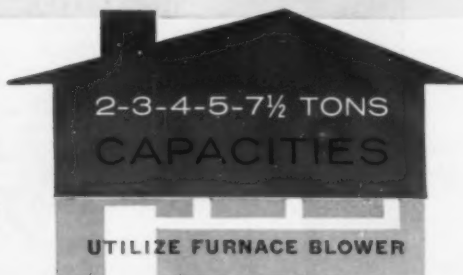
The McQuay Vertical Air Flow Residential Evaporator is available in 2, 3, 4, 5 and 7½ tons nominal capacities. It is designed to mount in the warm air outlet of either upflow or downflow vertical type furnaces, and has exclusive McQuay Ripple-Fin coil construction. Entire front panel removable to permit access to drawer type coil and drain pan assembly.

**McQuay** INC.

AIR CONDITIONING • HEATING • REFRIGERATION



Circle No. 30 on Reader Service Card





# any way you look at it..



# VIRGINIA<sup>®</sup>

*Chemicals*

is the biggest name  
in refrigeration  
and air-conditioning  
service and maintenance!

For  
WATER TREATMENT CHEMICALS  
DU PONT "FREON" REFRIGERANTS  
CAN-O-GAS<sup>®</sup>  
SUNISO REFRIGERATION OILS  
PRESSTITE INSULATION

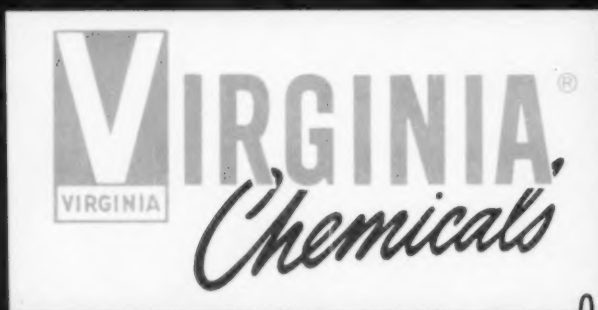


Look for this symbol. It's your assurance of getting a product that does the job better. Ask your wholesaler for "Virginia" products—for all your needs.



Pull this page up and fold out for the full story

# here's why



# is called the value line!

---

## WATER TREATMENT SERVICE

From "Virginia"—the plan and the chemicals to help you turn water into money

Let us show you the simple, tested way to sell this valuable, profitable service to old and new customers—how to follow through and increase profits up to 50%. Send for free booklet, "How to Turn Water into Money."

# SCALE & CORROSION INHIBITOR



**No sludging — no feeder devices — slow, even solubility**

"Virginia" Inhibitor reduces scale buildup sharply, holds corrosion to a new low. Just scatter the glassy polyphosphate crystals into the sump. Their slow, controlled solubility supplies a small, continuous dosage. This, together with proper bleed, prevents sludge from forming and keeps scale-forming solids in suspension or solution. Regular dosage means less scaling, less labor, lower equipment maintenance costs.

# LIQUID SCALE REMOVER



**In shatterproof throwaway container — fast-acting**

Goes to work instantly, cleans rapidly, with dissolving capacity 50% greater than that of many conventional cleaners of this type. Effectively inhibited to prevent damage to metals. Light container is much easier to handle than heavy gallon jugs. No breakage, splash or drip. Tough plastic liner and spout make pouring and resealing easy. Ideal for units choked with thick scale.

# PRESSTITE INSULATION TAPE



**For pipe condensation problems**

Ideal for lines used for alternate heating and cooling. Can be used on hot pipes up to 165°F. Contains 40% virgin cork—will adhere to any dry surface. Never gets hard or brittle. Quick and convenient.

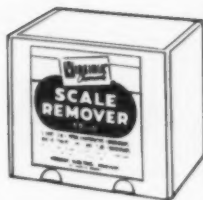
# PRESSTITE PERMAGUM SLUGS & CORDS



**For sealing openings**

Use slugs on seams, copper tube, BX and conduit entries to protect against moisture. Shields insulation. Nonshrinking, will not age harden. Cords ideally shaped for use around display cases, freezers, coolers, etc.

# SOLID SCALE REMOVER



**Rapid, economical and safe—even for galvanized equipment**

Virginia Solid Scale Remover contains 96% sulfamic acid. This dry-acid formulation is packed in 10 and 50-lb drums. Simply add to the cooling water, stir into solution, and it goes to work. Provides greatest measure of protection for galvanized, dipped zinc, and aluminum water-cooled equipment. Destroys algal growth. Safe to handle, easy to use.



# VASCOCEL INSULATION

**Preformed to cut time and labor costs**

Closed-cell structure of VascoCel makes condensation impossible. Made from self-extinguishing material that will not feed a fire—cannot carry flames along pipes from room to room. Resists acids, oil and fungus. So soft and flexible you can tie it in knots—durable, clean and odorless. Slips on easily over pipe or tube—or can be slit lengthwise and fitted onto pipe already connected. ID's from  $\frac{3}{8}$  to  $3\frac{3}{8}$  in.

# ALGAE- CIDES, 1,2&3



**Stop algae and slime from fouling water in systems**

No. 1 is an organic copper compound, lethal to algae and much more active than ordinary copper salts. For slimes, No. 2 is the ideal preventive—eliminates slimes and mixed slime-algae infestations, including copper-resistant algae. A quaternary ammonium compound, Algae-Cide No. 3 is equally effective for killing both algae and slime-causing bacteria. It comes in 1-qt. graduated liquid containers.



# DEGREASING SOLVENT

**Low toxicity — noncorrosive — fast drying**

Designed expressly for the degreasing needs of the refrigeration, electrical and automotive trades, "Virginia" No. 10 Solvent can be used safely to clean motors, parts, etc. Its high flash-point of 154-160°F and dielectric strength of 20,000 volts insure low fire hazard.



# ICE MACHINE CLEANER



## Eliminates slow freeze, bad taste and odor

Will not injure enamel or polished metal surfaces. Highly effective on automatic cube or flake ice machines. Just fill tray with warm water—dissolve one or two 5-oz. tubes—circulate to remove lime deposits, slime and dirt—flush solution out and rinse. That's all there is to it!

# DU PONT "FREON"<sup>\*</sup> REFRIGERANTS



## Nonflammable—nontoxic—stable—odorless

Best known for premium quality—most widely used refrigerants in the industry. "Freon" Refrigerants are distributed nationally by "Virginia" in cylinders of all popular sizes. Available are "F-11," "F-12," "F-22," "F-113" and "F-114."

"Virginia" also supplies sulfur dioxide and methyl chloride in a variety of container sizes.

\*Du Pont registered trademark

# SUNISO REFRIGERATION OILS



## With greater stability, lower wax point

The well-known Suniso G Oils have been improved to give greater stability and the lowest waxing out point available. Obtainable in these grades: 3G-150 SSU; 4G-300 SSU; 5G-500 SSU.

Suniso Dual Inhibited Oils have same low wax point and provide even greater stability against breakdown due to abnormally high operating temperatures. They have the exclusive property of resisting copper-plating. Available in two viscosities—150 SSU and 300 SSU. Suniso Dual Inhibited Oils have performed where others failed. Both oils are packed in 1 gal., 5 gal. and 55-gal. containers.

# CAN- O- GAS<sup>®</sup>



## Convenient packaged refrigerants

Service and maintenance trades find these popular refrigerants in throwaway cans ideal for charging water and beverage coolers, freezer cabinets, and automobile air conditioners. They are well suited for adding critical charges. Convenient opening device available from "Virginia" will dispense contents of one, two, three or four cans simultaneously.

# "VIRGINIA" FOR DU PONT "FREON"\*

THE INDUSTRY'S MOST  
DEPENDABLE AND POPULAR REFRIGERANT

\*Du Pont registered trademark

# "VIRGINIA" FOR CAN-O-GAS®



FEATURING "FREON" and other POPULAR REFRIGERANTS PACKAGED IN HANDY



#### **"FREON-11"**

(b.p., 74.7°F)

200 lb. drums, single trip

100 lb. drums, single trip

#### **"FREON-12"**

(b.p., -21.6°F)

145 lb. cyls.

25 lb. cyls.

10 lb. cyls.

#### **"FREON-22"**

(b.p., -41.44°F)

125 lb. cyls.

22 lb. cyls.

9 lb. cyls.

#### **"FREON-113"**

(b.p., 117.6°F)

200 lb. drums, single trip

100 lb. drums, single trip

#### **"FREON-114"**

(b.p., 38°F)

150 lb. cyls.

25 lb. cyls.

Also available—"Virginia" sulfur dioxide and methyl chloride in a wide variety of container sizes

RANTS

"Virginia" is an authorized repacker of "Freon" refrigerants and makes them available in the industry's most complete line of throwaway containers.

#### **AVAILABLE REFRIGERANTS**

"Freon-12"	15-oz. cans
"Freon-22"	2-lb. and 1-lb. cans
"Freon-114"	16-oz. cans
Sulfur dioxide	16-oz. cans
Methyl chloride	2-lb. cans

Cans are packed 12 to a case and the complete line may be ordered with either clip top or screw top cans



#### **VALVE OPENER**

Designed to open and dispense Can-O-Gas contents. Adaptable to all Can-O-Gas sizes. Special nylon seat assures a positive shutoff—an important, exclusive feature.



#### **MULTI-OPENER**

Will open and dispense the contents of from one to four Can-O-Gas units individually or simultaneously. Can dispense critical charges in half-ounce increments. (Not for use with SO<sub>2</sub>.)

NDY THROWAWAY CONTAINERS

# "VIRGINIA" FOR DEPENDABLE PRODUCT QUALITY

For nearly 30 years the air-conditioning and refrigeration maintenance trades have relied on "Virginia" for dependable service. When you specify a "Virginia" product, purity and uniformity are your assurance of trouble-free performance and complete customer satisfaction.

Refrigeration Division

**VIRGINIA SMELTING COMPANY**

West Norfolk, Va.



## The small end of the funnel

I'M new here, as any of you know who read this page last month. So this is my first chance to fill this space. And suddenly I'm overwhelmed by the realization that anything I write will be repeated more than 32,000 times in the more than 32,000 copies of THE REFRIGERATION & AIRCONDITIONING BUSINESS that are printed and distributed each month.

This strikes me as a tremendous responsibility and also as a tremendous challenge—a challenge to do everything possible to assure the successful and profitable growth of our industry.

Ever since this magazine published its first issue 16 years ago it has been dedicated to solving the problems of the installing contractor. The reason: all the efforts of component manufacturers, original equipment manufacturers, and wholesalers amount to little until they have been channeled through this installing contractor—the small end of the funnel.

We're not changing our tune now. On the contrary, we're determined to keep on doing a better and better job of what we've been doing all along.

But just who is this installing contractor we talk about? He's called by many names: contractor, contractor-dealer, mechanical contractor, dealer, installer, distributor, service contractor. But no matter what you call him, or what he calls himself, you can be sure of this—his prime function is to install one or more of this industry's many types of products.

So it really doesn't matter whether his background is in refrigeration, air-conditioning or heating. And it doesn't matter whether his emphasis is on sales, service, or system design and engineering. Or whether he concentrates on the commercial, industrial, or residential market. He may fit into any or all of these categories, but if he installs any refrigeration or airconditioning equipment, regardless of type or size, he's an installing contractor.

And if he's an installing contractor, he's our reader. So we'll continue to help him in every way we can.

We'll continue to point out new prospects for his products, and show him better ways to sell them.

We'll continue to show him how to do a better job of applying every type of refrigeration and airconditioning equipment, and how to engineer these products into more satisfactory systems.

We'll continue to stress the importance of proper product maintenance, and show him how to make service an increasingly profitable part of his business.

We'll continue to offer him sound business management advice which will help him get the greatest financial return from his effort and his investment.

And we'll continue to turn the spotlight on any industry problems that have a significant effect on any phase of his business.

Yes, we'll do all this because we sincerely believe that anything we do to stimulate the profitable growth pattern of the installing contractor will inevitably result in the profitable growth of the wholesaler as well as the manufacturer and his suppliers. And because we know that if we help the industry grow, we'll grow with it.

*Jack Robinson*

## Engineering the temperature...

*with RECOLD on the Illinois Tollway*

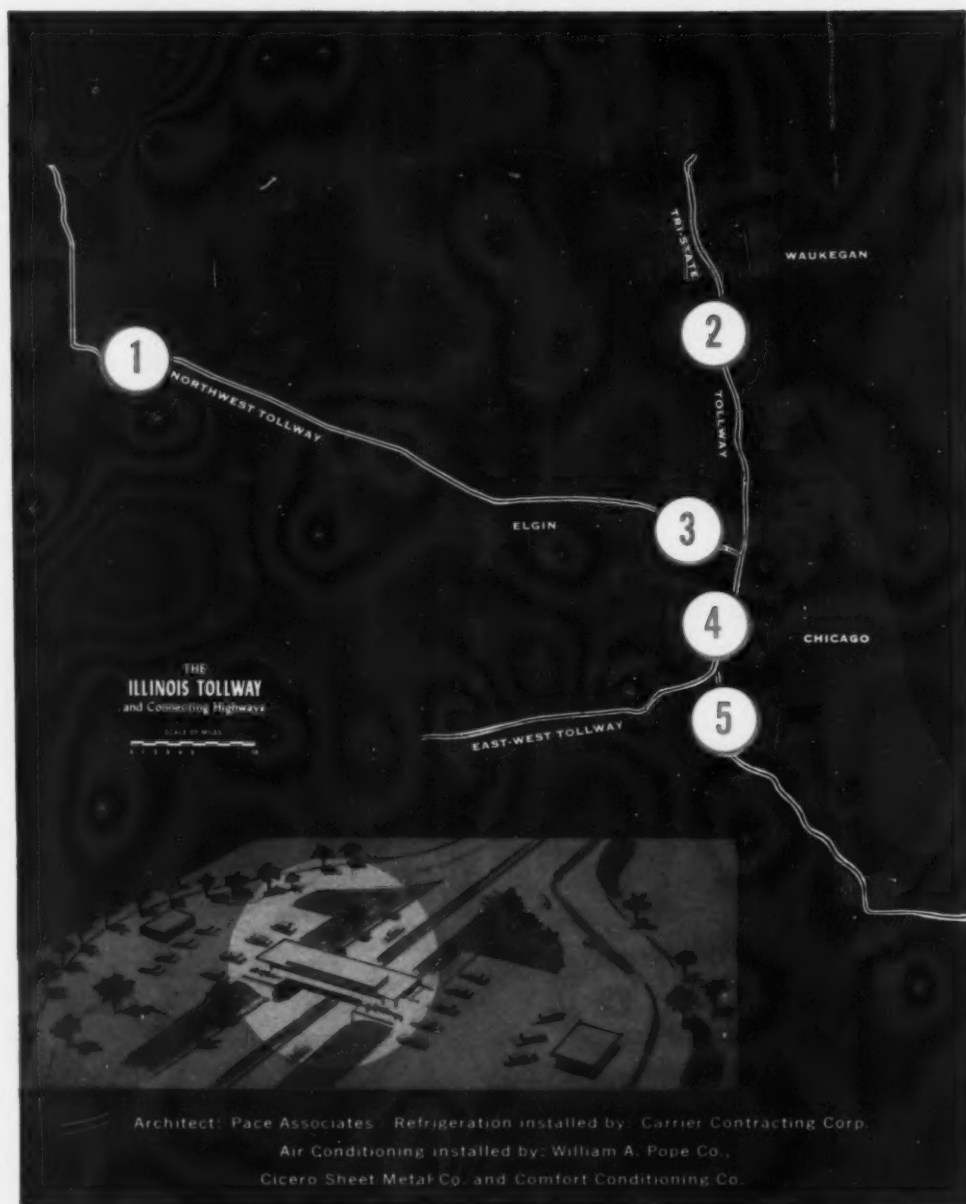
At any of the five "Oases" along the 187-mile Illinois Tollway, motorists may dine and relax at Fred Harvey Restaurants overlooking the highway or service their automobiles at Standard Oil stations. Everywhere, be it toll gate, restaurant or service station, year-round comfort is assured with air-conditioning by Recold Corporation.

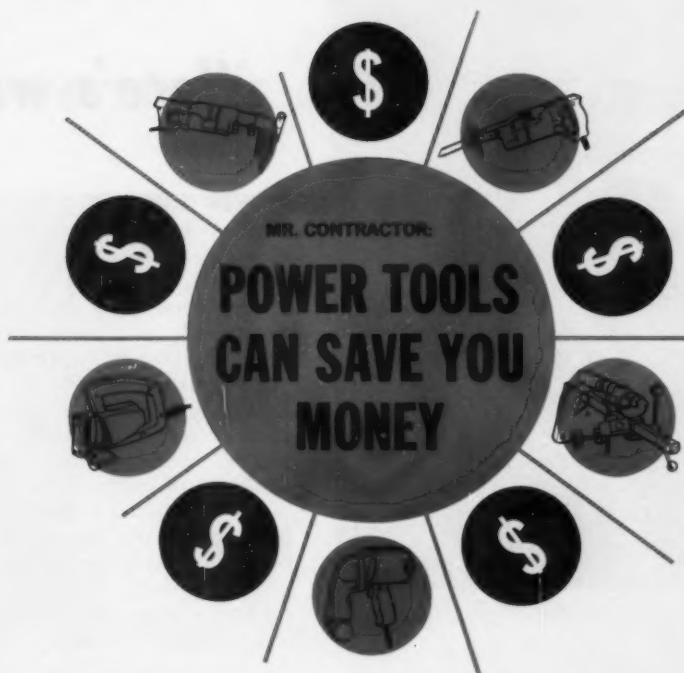


## RECOLD CORPORATION

7250 East Slauson Avenue, Los Angeles 22, California

ADVERTISER





WOULD YOU CONSIDER sending any of your installation mechanics or servicemen out on a job in a horse and wagon? Ridiculous? It sure is. But it's just as ridiculous to send them out to install refrigeration or air-conditioning equipment with tools that are as obsolete for that purpose as the horse and wagon.

Take a good look at the tools your installation mechanics and servicemen are using. Chances are you'll find you can cut both time and labor costs by replacing some of your hand tools with portable power tools.

Labor is the largest single cost element in any airconditioning or refrigeration job. And anything you can do to cut labor costs will help make your bids more competitive, and your profits higher.

by Robert Walsh  
associate editor

Hand tools are necessary, of course. But there are some basic power tools you should have to handle jobs in the best way possible.

Too many contractors think in terms of shop equipment when they think of power tools, but most power tools are portable and can be used to cut labor costs either in the shop or on the job.

Okay, so you agree that you should have some power tools in your shop. The next obvious question is—what power tools should you have?

Volume is the key to selecting the power tools you need. But nearly every contractor should at least have a good power saw, a drill with a right angle attachment, a diamond bit drill for going through concrete, a lockhammer, and a pair of metal cutting shears.

Maybe you know from past experience that your volume of installation and service work is not sufficient to warrant the cost of one or more of these tools. If so, you should consider renting the tools as they are needed. By renting them you gain the advantages of having power tools at your disposal without the worry of being able to write off the cost of the tools over a relatively short period of time. Some power tool dealers offer tools for rent in most metropolitan areas.

When you're selecting these power tools remember this one important fact: you're not running a home workshop. So tools that are made for "light" or "intermittent" service simply won't do. You need heavy duty tools that were manufactured for people like yourself—people who make a living with tools. You should buy tools that will do a hard day's work, all day, every day. Don't hunt for bargains. If you do, you'll probably end up scrapping the bargains in a short time and replacing them with quality tools.

To see how to use them, turn the page ►



## Here's what

### POWER SAWS

Best used for sawing openings in walls or floors (other than concrete), or ceilings for ducts or registers. Cuts any shape clean and fast. Some models need plunge-cuts in wood and like materials. Will saw through wood, metal, plaster, pipe and many other materials such as imbedded nails. Eliminates the difficult job of cutting neat openings which would require a key-hole saw. Wide assortment of blades available for cutting irregular contours or general all purpose cutting through metal, wood or nail-embedded woods.



### RIGHT ANGLE DRILL

Gives you drilling power for accurate drilling between joists, studding, in tight corners, among pipes or any close quarters. Most models drill through any material at a choice of drilling speed best suited to the job. Models are available for drilling through all types of material, with wide range of bits available.



### DIAMOND BIT DRILL

For drilling large holes through masonry or concrete. One contractor reported a 70% reduction in drilling time on a coring job—from three hours per hole to 55 minutes. Models are available for dry-drilling reinforced concrete. Best suited for use in areas where dust and noise would be prohibitive, such as in hospitals, hotels, offices, institutions, food-processing and industrial plants.



## *power tools can do for you . . .*

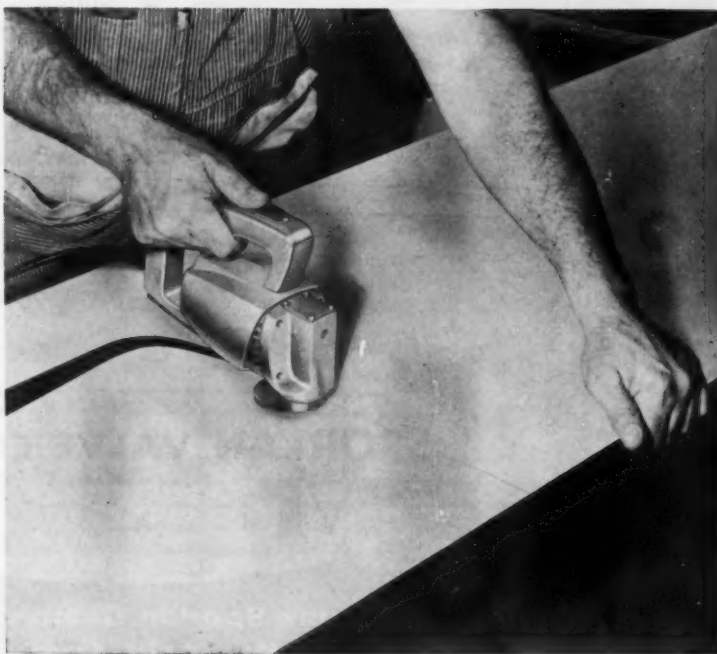


### **LOCKHAMMER**

Designed for fast, easy closing of Pittsburgh locks. Turns flanges over neatly and securely on ductwork. Models available to handle various gauges of sheet metal. Turns the time consuming job of closing the seam into a simple, easy operation. Models can be used in the shop or on the job. Provides straight runs, inside or outside radius. Just a couple of taps at the center and ends of a standard length of duct to secure the lock is all that is required to use a lockhammer.

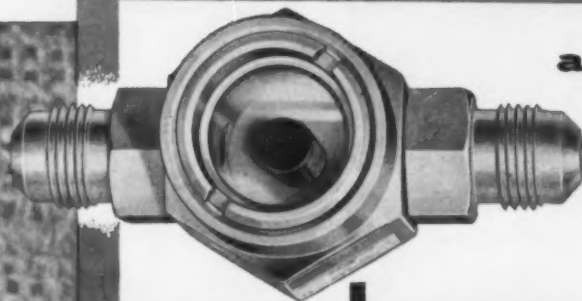
### **METAL CUTTING SHEARS**

For cutting tight curves in sheet metal. Most models will accommodate usual duct size metal gauges. Can be used for cutting templates, or for straight or curved cuts. Provides sheet metal men with an efficient means of making difficult cuts in sheet metal. A good model will leave the work edges clean and smoothly finished along the cutting line, without further trimming or deburring.



Photos from: Milwaukee Electric Tool Corp., and New England Carbide Tool Co.

# Check these **SPORLAN** *See-All* firsts



**and you too will demand  
this combination  
Moisture and Liquid  
Indicator!**



- ▼ One indicator for Refrigerants 12-22-40 & 500. Green always means dry. Chartreuse is the caution signal, and when the indicator turns to Yellow, the system is too wet!
- ▼ Color changes are easily distinguished and reversible.
- ▼ An indicator protected from discoloration and washing by a filter pad.
- ▼ Color change point that is reliable and accurately calibrated as to temperature.
- ▼ Can be installed anywhere in the liquid line.
- ▼ A full-view sight glass available with either flare or sweat connections.
- ▼ Double gasket – each a molded wedge providing a positive leakproof joint.
- ▼ Disassembly not required during installation.

**Ask** your friendly Sporlan Wholesaler  
for Bulletin 70-10 for complete details on  
the Sporlan *See-All*.

**SPORLAN VALVE COMPANY**

7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI



EXPORT DEPARTMENT  
85 BROAD STREET, NEW YORK 4, N. Y.

*Remember...* only Sporlan Catch-All Filter-Driers  
give you Really Clean, Dry, Acid-Free Refrigerant Systems!

Circle No. 33 on Reader Service Card

MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS

# Heat pumps continue to set the pace as 1959 unitary airconditioner sales rise 49%

Manufacturers' shipments of unitary airconditioners for 1959 totaled 285,935 units, excluding coils. These figures, reported to Air-Conditioning and Refrigeration Institute, represented a gain of 49% over 1958.

Unitary heat pumps are included in the statistics,

but not room airconditioners. Heat pump shipments showed the biggest increase with 35,167 units, a jump of 94% over '58. More than 65% of heat pumps shipped were self-contained.

Condensed figures for the year for unitary airconditioners follow:

This condensed summary by size includes shipments of (1) airconditioners (except window and wall types), with or without condensers and refrigeration chassis; (2) year-round airconditioners, with or without condensers; (3) heat pumps (except room airconditioners), self-contained and other than self-contained, and (4) split systems, airconditioning condensing units only. Does not include shipments of airconditioning coils with or without blowers.

**Reporting Companies:** Airtemp Div., Chrysler Corp.; Amana Refrigeration, Inc.; American Furnace Co.; American-Standard Air Conditioning Div.; American-Standard Industrial Div.; Arkla Air Conditioning Corp.; Armstrong Furnace Co.; Carrier Corp.; Cleveland Steel Products Corp.; Cobell Industries, Inc. (from July); Coleman Co., Inc.; Columbia Specialty Co., Inc.; Continental Mfg. Co.; Coolerator Div., McGraw-Edison Co.; Curtis Mfg. Co.; Fedders Corp.; Florida Warren Corp.; Forston Co.; Fraser & Johnston Co. (from May); Frick Co., Inc.; Friedrich Refrigerators, Inc.; Frigidaire Div., General Motors Corp.; Gaffers & Sattler Div., Utility Appliance Corp.; General Electric Co.; Grove Furnace Co., Inc.; Hall-Neal Furnace Co.; Heat-X, Inc. (from August); Heil-Quaker Corp.; Holly-General Co.; Hupp Corp.; Gibson Refrigerator Co. (Jan-Mar); Perfection Industries, Typhoon Air Conditioning Co., Typhoon Heat Pump Co.; International Heater Co.; Iron Fireman Mfg. Co.; Janitrol Heating & Air Conditioning Div.; Lennox Industries Inc.; Majestic Co., Inc.; Mathes Co. (from April); Miami Products Inc.; Mueller Climatrol, Div. of Worthington Corp.; National Thermatic Corp. (from April); National-U.S. Radiator Corp.; C. A. Olsen Mfg. Co.; Peerless Corp.; Philco Corp.; Rheem Mfg. Co.; A.O. Smith Corp.; Southwest Mfg. Co.; Stewart-Warner Corp.; U.S. Machine Div.; Thatcher Furnace Co.; Therm-Air Mfg. Co. (from June); Trane Co.; Tuck-air Furnace Co.; United States Air Conditioning Corp.; Westinghouse Electric Corp.; Whirlpool Corp.; Williamson Co.; Worthington Corp.; York Div. of Borg-Warner Corp.

**Condensed summary of unitary airconditioner shipments (Oct.-Dec. 1959)**

SIZE	By Condenser-Type		Total Units	% Change from 1958
	Air or Evaporatively Cooled	Water-Cooled		
	BA	BO	B	
Under 27,000 Btu/hr	8,527	51	8,578	+52%
27,000-32,999 Btu/hr	3,651	-	3,651	+5%
33,000-41,999 Btu/hr	17,538	1,556	19,094	+96%
42,000-53,999 Btu/hr	4,980	37	5,017	+103%
54,000-64,999 Btu/hr	5,049	2,164	7,213	+51%
65,000-96,999 Btu/hr	2,512	1,263	3,775	+32%
97,000-134,999 Btu/hr	1,125	1,124	2,249	+34%
135,000-184,999 Btu/hr	213	480	693	-0-
185,000-249,999 Btu/hr	170	383	553	+47%
250,000-319,999 Btu/hr	41	312	353	+14%
320,000-379,999 Btu/hr	25	222	247	+123%
380,000 Btu/hr and over	13	55	68	+31%
<b>TOTAL</b>	<b>43,844</b>	<b>7,647</b>	<b>51,491</b>	<b>+60%</b>

**Condensed summary of unitary airconditioner shipments (Jan.-Dec. 1959)**

SIZE	By Condenser-Type		Total Units	% Change from 1958
	Air or Evaporatively Cooled	Water-Cooled		
	BA	BO	B	
Under 27,000 Btu/hr	45,477	729	46,206	+49%
27,000-32,999 Btu/hr	20,965	436	21,401	+22%
33,000-41,999 Btu/hr	88,348	12,192	100,540	+62%
42,000-53,999 Btu/hr	27,196	603	27,799	+114%
54,000-64,999 Btu/hr	30,205	14,289	44,494	+34%
65,000-96,999 Btu/hr	13,968	8,181	22,149	+31%
97,000-134,999 Btu/hr	5,790	6,913	12,703	+31%
135,000-184,999 Btu/hr	1,125	3,740	4,865	+16%
185,000-249,999 Btu/hr	760	1,900	2,660	+13%
250,000-319,999 Btu/hr	153	1,499	1,652	+22%
320,000-379,999 Btu/hr	137	1,014	1,151	+90%
380,000 Btu/hr and over	78	237	315	+64%
<b>TOTAL</b>	<b>234,202</b>	<b>51,733</b>	<b>285,935</b>	<b>+49%</b>

Reported by Unitary Air-Conditioner Section, Air-Conditioning and Refrigeration Institute

[illegible]MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS





#### COOLING CENTER

controls the remote condensing unit. Internal circuits are factory-wired.

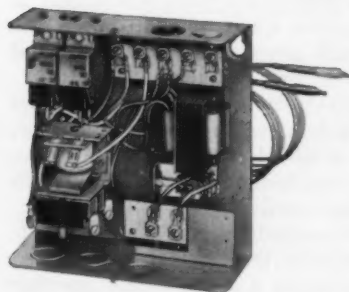


#### FAN CENTER

controls the air handling equipment on all systems with remote condensing units.

# ALL-NEW! "CODED" CONTROL CENTERS

## for residential air conditioning



#### SYSTEM CENTER

interlocks in one unit all heating-cooling functions for self-contained systems.

In Penn's newest line of Control Centers, field-replaceable parts are easy to get out . . . easy to get in *correctly* because all internal wiring is color coded. And, these color-coded leads are equipped with *quick-connect terminals* . . . no more looping of wire or soldering connections.

There are other advantages, too! Centers are small to save space in compact 2 and 3 H.P. units. Wrap-around cases save wiring time in factory and field. And, field-installed Fan Centers have Life Guard reverse panel construction. All operating parts are easily accessible, yet are fully protected against accidental damage. Write to the Penn factory for the complete story on these new, better Control Centers.

**PENN CONTROLS, INC.** Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES  
Circle No. 34 on Reader Service Card



**NOT ONE OF THESE HOMES** was sold without year-round airconditioning. Builder Julius Cohen (right) included it as standard equipment in his Columbus, Ohio, development.

## Airconditioning Is Part of the Package

IS IT PROFITABLE to offer year-round airconditioning as standard equipment in a new, low-cost home, regardless of location? This builder did it up North and met with great success. Last year he built 300 homes in Columbus, Ohio, sold out, and expects to build four times that number this year. His success points to a mass market acceptance of

residential airconditioning above the Mason-Dixon line.

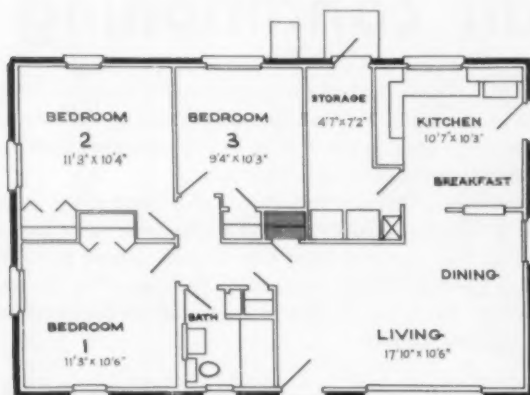
Julius Cohen, head of Jewel Builders, sold his "Homestead" development in a highly competitive market and came out on top. Prices: between \$13,750 and \$15,250.

These brick, 3-bedroom ranch homes contain built-in kitchen appliances, aluminum awning windows with screens, marble window sills, circuit breakers, a built-in clothes hamper, and mahogany doors.

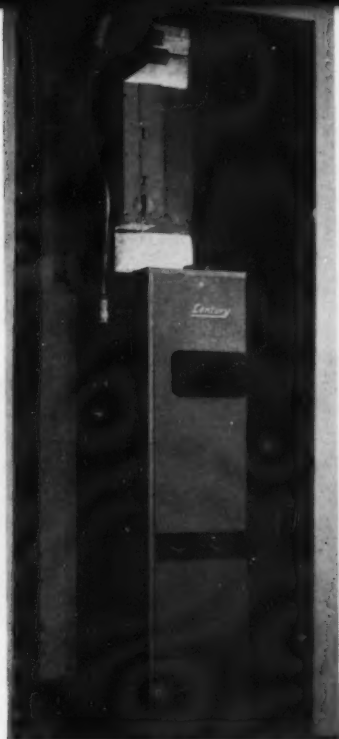
This year he is putting up 1400 new homes in Columbus, Youngstown, Ohio, and Pittsburgh, Pa. All offer year-round airconditioning as standard equipment. "We feel this way's best," he says.

Last spring 38,000 people came to open houses on four consecutive Sundays. Big-name entertainers were on hand as an added attraction. In less than a month, Cohen was building to fill orders. In seven months he had a sellout.

He feels that, in airconditioning, Homestead offers a bonus feature to the buyer as a standard item. "Airconditioning in a home means prestige to the owner," Cohen boasts. Usually only higher-priced homes are airconditioned in Ohio. When the Homestead development caught on, builders of these more expensive homes saw that aircondition-



**CENTRAL UTILITY CLOSET** (shaded area) contains the Century airconditioning unit in this \$13,750 slab-type Homestead home.



**HERE'S THE 2-HP** air-cooled unit used in all Homestead homes.



**REMOTE CONDENSING UNIT** for this model is located directly behind the house. In some other models, the unit is at the side. Builder Cohen is at right.

## ... in these low-cost Ohio homes

ing would soon become an essential ingredient, not just icing on the cake.

Cohen's plans to increase his output are based on more than the success of his first 300 homes. He hired a private firm to survey 58 buyers of Homestead homes and asked them to find out what led people to buy. The results:

Buyers ranked airconditioning second only to brick construction as the most outstanding influence. Half of them mentioned year-round airconditioning as one of the first five factors influencing their purchase. This is the ranking:

RANK	NUMBER OF BUYERS
Most important	4
2nd most important	6
3rd most important	10
4th most important	4
5th most important	5

What did Jewel salesmen do to promote air-conditioning in Homestead homes? They stressed (1) quiet operation; (2) cleanliness, and (3) urged owners to keep filters clean to insure efficient, more economical operation.

This year Jewel homes will be equipped with a list of do's and don'ts for year-round satisfaction. At the top of this list, which will be posted on the airconditioning unit, will be the suggestion to keep

the cooling cycle on 24-hour operation during the summer.

Cohen feels the 2-hp Century air-cooled unit is ideal for the Homestead home. And, he made sure insulation would complement the heating-cooling system. One Honeywell thermostat controls both.

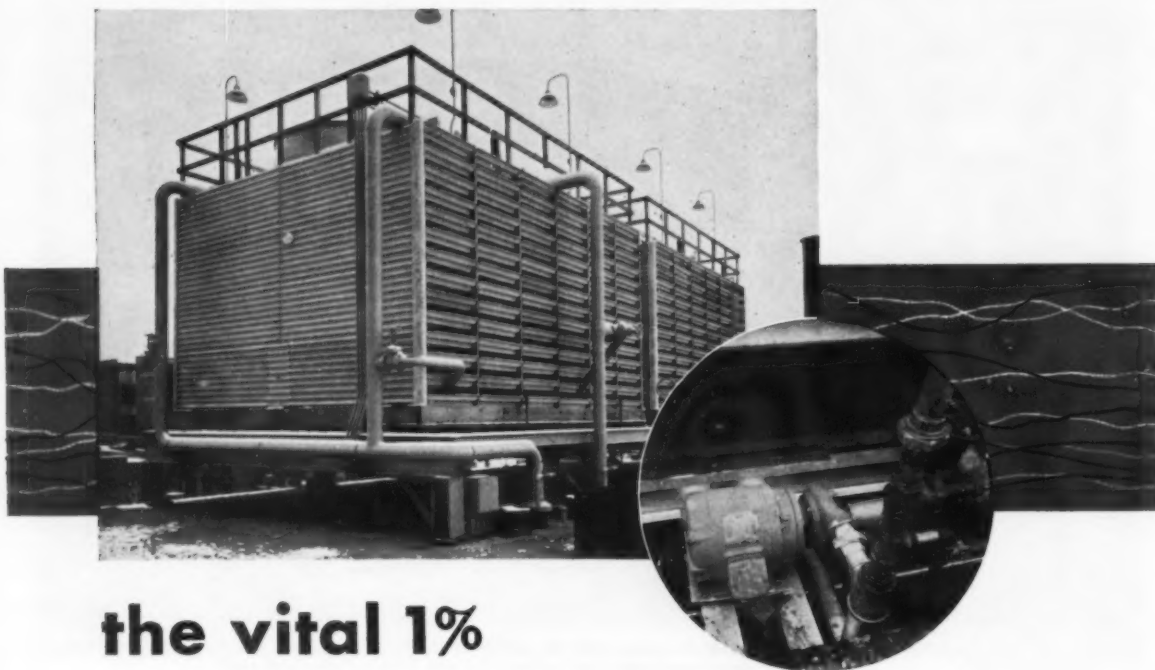
"We made every effort to keep costs down," stressed the builder. "Nationwide figures show that for every \$100 increase in the price of a home, there's a 5% drop in the number of qualified buyers."

Some Homestead homes are built on slabs, others have full basements. In slab-type homes, the airconditioning unit is in a central utility closet, which also contains the water heater.

Rigid glass fiber ducts are used in the air distribution system for heating and cooling. These ducts run through the attic spaces to overhead air diffusers. Non-metallic ducts were chosen for economy.

Cooling equipment consists of an evaporator mounted directly above the furnace and connected to a remote condensing unit at the rear or side of the house.

Crestview Contracting Co. of Cincinnati, Ohio, did the installation for Homestead. Crestview set up a branch office in Columbus to handle the job. This office is now staffed by three men and handles service for the development.



## the vital 1%

In an air conditioning installation, the pump seldom exceeds 1% of the total cost, but the importance of this 1% is obvious . . . if the pump breaks down, the entire system fails. The proven dependability and lower maintenance costs of Ingersoll-Rand Motorpumps are only two reasons why they are the leader for such important applications. I-R Motorpumps simplify installation because they are compact. They operate in any position and they are available in a wide range of types and sizes to meet any requirement.

a century

1860 - 1960

of pump progress

from the leading manufacturer . . .

"K" line Motorpumps for smaller installations are available 1/3 through 25 HP.

# Ingersoll-Rand

81A9

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OTHER I-R PUMPS AVAILABLE



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Cradle mounted pumps

Circle No. 35 on Reader Service Card

MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS



by Jim McCallum, editor

# ELECTRIC HEAT

## ... has it turned the corner?

IF YOU'RE SELLING residential airconditioning, keep a sharp eye on electric heat. Looks like it may have turned the corner and be started on its way to a whopping increase in the next few years.

That's the definite impression I got from sitting in on the First National Electric House Heating Symposium and Exposition. This initial get-together of people from all segments of the industry interested in electric heat was held in Chicago under the sponsorship of the electric house heating equipment section of National Electrical Manufacturers Association.

Success of the meeting far exceeded NEMA's greatest hopes. No more than 500 to 700 people were expected, but nearly 3000 showed up. Symposium sessions were packed on all three days. Aisles and booths in the exhibit areas were jammed with active, interested crowds.

Analysis of registrations showed the following breakdown by industry groups: utilities, 28%; electrical distributors, 22%; exhibitors, 17%; electrical contractors, 14%; electrical engineers, 7%; component parts manufacturers, 7%.

But what about electric heat itself? How big is the market? How fast is it growing? Statistics released by NEMA tell the story. With 850,000 homes electrically heated today and a goal of 6 million set for the close of this decade, the electric heating market in terms of equipment and labor will soon reach \$1 billion annually.

Several powerful forces are at work actively promoting the cause of electric heat.

Electric utilities are plumping hard for it because electric heat looks like a good bet to balance out their steadily increasing summer cooling load. To this end, many of them are offering special heating rates. Such rates are a near necessity if the market is to grow as pictured. Many utilities also are pouring a great amount of sales and promotional effort into the battle to build acceptance of electric heat on the home front.

The insulation companies, too, are behind electric heat because adequate insulation is a must if electric heating is to be practical from a cost standpoint. In this connection a proposed new "All

Weather Comfort Standard" for electrically heated and airconditioned homes was announced at the symposium, as was a new performance standard developed by the National Mineral Wool Association.

The comfort standard was developed by an unidentified group of utilities working with manufacturers of airconditioning and heating equipment, insulation, and glass. It is being submitted to a number of trade groups and manufacturers for their acceptance. Its purpose is to establish recommended thermal performance values and insulation practices for electrically heated and airconditioned homes.

Tied into this new development is the new performance standard of the National Mineral Wool Association. This standard offers a single "R" value to indicate the installed resistance of any insulation to the passage of heat, taking into account all of the influencing factors of thickness, density, and conductivity. The standard recommends that all mineral wool products be stamped with this single "R" number to simplify the problem of specifying and selecting insulation to meet any given requirements.

Electric heat offers interesting possibilities to the airconditioning dealer and contractor because it ties in with mechanical comfort cooling in three basic ways.

First, of course, there is the heat pump that incorporates both heating and cooling in a single electrically powered unit.

Then there is the electric furnace or duct heater used in conjunction with a central airconditioning unit to distribute both warm and cool air through the same system of ductwork.

And finally there's the great variety of radiant heating products—baseboard, wall panels, and heating cable—that can be used to provide room by room heating comfort to supplement the room by room cooling which is furnished by room air-conditioners.

So, in view of all these facts, I say again that if you're in the business of home airconditioning you'd better give electric heat a long, hard look.

# "It's a Crime" article stirs up

LET'S SET THE RECORD STRAIGHT. We're all in this business together. And if any part of the industry is hurting, we feel it is our job as a business publication to do something about it.

That's why, in the November 1959 issue of THE REFRIGERATION & AIRCONDITIONING BUSINESS, we published the article: "It's a Crime the Way Inept Servicemen Are Hurting Our Business". We hoped that by dramatizing this serious weakness we could arouse the industry so that something could—and would—be done to correct it.

We had no intention of degrading or disgracing the serviceman. We certainly weren't pointing an accusing finger at him alone. In fact, in the editorial that immediately preceded this article, we specifically pointed out that the blame for improperly trained and equipped servicemen must be shared by every segment of the industry from the manufacturer on down.

The response we have received to this article—from manufacturers, wholesalers, distributors, and contractor-dealers, as well as from servicemen—leads us to believe that we have been successful in stirring up a considerable degree of interest in, and action on, this problem.

We have had requests for nearly 20,000 reprints. Many of these have been used by manufacturers and by their distributors and dealers as an aid to intensified service training programs.

And we have received a great many letters, some cheering, some challenging our position. Several of these, representing typical opinion from both sides of the fence, are reproduced on these pages.

The important thing to recognize is that, regardless of the cause, the problem exists. And if our business is to grow and prosper it's up to all of us to do what we can to find the cure.

For our part, THE REFRIGERATION & AIRCONDITIONING BUSINESS will continue to publish timely articles aimed at helping servicemen better understand the complex nature of the equipment they are called upon to service, and pointing out to them what tools and instruments are available for their use in testing and repairing this equipment.

We will continue to show contractors what they can do to provide proper training for servicemen.

And we will continue to impress upon manufacturers the importance of making adequate service information and service training facilities available at all levels of distribution.

## ... credits article with help in passing law

EDITOR:

We read the article, "It's a Crime" with interest and placed a copy of it in our customers' room for their review.

The refrigeration trade, through various organizations, have been pressing the city administration for a licensing law, the primary purpose to protect the public from inexperienced and incompetent self-styled servicemen. This article was presented to the board of standards and appeals, which is a permanent sub-committee passing on revisions of the building code.

I feel that the result of this article was a prime factor in motivating the board to recommend to the city council that a licensing law be made part of the city code.

I must compliment you on the unbiased methods used in obtaining material for the article. It cer-

tainly depicts the deplorable conditions, and should be a great help in eliminating this condition in the future.

H. A. DAWSON

Acme Refrigeration Supplies, Inc.  
New Orleans, La.

## ... blames attitude of manufacturers and employers

EDITOR:

I have read the article, "It's a Crime" and would like to add my own comments as a serviceman who pioneered in 1928. Manufacturers have taken the attitude of, "keep the inquisitive serviceman's brain inactive. Seal up the relays on the hermetic and semi-hermetic units and keep up the electrical mystery."

The built-in obsolescence was not put there by poor servicemen. The manufacturers, through the



# spirited response from readers

Industry weakness hits home as readers give reasons  
for poor service and offer solutions to improve it;  
letters place the blame at all levels of the business

poor release of adaptability of parts, have forced the serviceman to either lie when original parts are two to three weeks away, or tell the truth and have another man who happens to have a spare make him out a liar.

I studied for many years while working at this trade, but my employers discredited my knowledge and insisted I must be wrong, that if it was designed by a manufacturer I should relax as they are never wrong. So I quit studying. If I'm stumped by a rigged breakdown which always is different than any regular breakdown, I too shall be a criminal as set up in the standards of manufacturers.

HENRY B. BOYCE  
Naval Supply Center  
Oakland, Calif.

## ... wants to tie in with RSES educational program

EDITOR:

I think very highly of your article, "It's a Crime," and the information it contains. I would like to find some way to tie in this article with the benefits of the educational activities of R.S.E.S., and I am wondering if you might have any ideas.

Believe me, the article has resulted in a tremendous amount of controversy as well as presenting many questions as to what can be done about such situations.

JOHN H. SPENCE,  
educational director  
Refrigeration Service Engineers  
Society  
St. Louis, Mo.

## ... makes you think twice

EDITOR:

We congratulate you on your article "It's a Crime." We feel certain that those who have read this article will think twice before making a diagnosis that may make them look silly.

Articles of this type can surely help to improve all businesses.

WILLIAM A. SCHWARZ JR.  
William A. Schwarz & Son, Inc.  
New York, N.Y.

## ... blames negligence

EDITOR:

Congratulations on your expose, "It's a Crime." We too agree with the article that the average serviceman, either due to his own negligence or his employer's near-sightedness has not kept himself abreast with the modern methods of diagnosing and servicing equipment in our industry. We do hope that your article will not only be provocative but will get some of these servicemen off dead center.

J. A. MEKEL  
Bryant Mfg. Co.  
Indianapolis, Ind.

## ... says servicemen need proper instruments

EDITOR:

I have read with a great deal of interest your article, "It's a Crime." As I read this article and ponder over it I am more than ever convinced that what the servicemen need is proper and adequate in-

struments in order to diagnose quickly and accurately the difficulties which they are asked to correct.

The serviceman without proper instrumental equipment is like a dog walking on its hind legs. It is sometimes done but never well.

Adequate equipment for finding such difficulties is available on the market. And any serviceman with the proper equipment should have accurately located the trouble in a very few minutes. None of your ten engineers could have failed in the diagnosis. All ten should have quickly located the trouble, and assuming that they had a good relay with them, corrected it.

JIM BROWN  
Warranty Service Company  
St. Louis, Mo.

## ... asks for definition of "poor serviceman"

EDITOR:

This is in answer to your article "It's a Crime." We, the refrigeration men of Winston-Salem, N.C. have discussed this article and have listed our answer below.

What is a serviceman, and why is he trampled on in every corner of the world? He is not recognized by the U.S. Government, nor by architects, and he does not have a legal right to work in between the plumber and electrician. Yet he must be an engineer, a fairly good plumber, and have a good knowledge of electrical components. He must know all about such things as: amps, Btu's, pipe sizing, operating pressures, running of refrigerant

*Continued on next page*



## "IT'S A CRIME"

*Continued from preceding page*

lines and oil returns, and the correct amount of refrigerant for each job.

We feel that we could rig a job so that it would confuse the manufacturing expert, and we think they would give a wide variation of suggestions.

The right-to-work law in many states has created many inept servicemen. Anyone can move one screw on a piece of refrigeration equipment, and they are automatically in the refrigeration business.

We know of instances where medical doctors have given the wrong medicine, and we also know of efficient attorneys who have lost cases. Why pick on the poor serviceman? Why don't you pitch in and help him so he can give better service?

We concede that there are some men in our industry who do not know even the fundamentals of refrigeration yet go out as refrigeration servicemen. This problem may never be solved.

N. F. CRATER  
Refrigeration and Air Conditioning  
Trade Association  
of North Carolina, Inc.  
Winston-Salem, N.C.

### ...outlines check list for finding trouble

EDITOR:

Your article, "It's a Crime" really made me jump. Your article ignores the fact that the serviceman had to perform the way he did. I worked for the owner of one business and quit him cold because of just such practices as your article

describes. Any serviceman with only a basic knowledge of refrigeration and electric circuitry would approach the problem in the following sequence:

Check for continuity of circuit at unit terminals, check fuses.

If energy is present, check all capacitors across line voltage.

After capacitor check, check overload for possible open circuit.

If there is no continuity of circuit, remove the start capacitor lead from relay and touch momentarily to run winding.

If the unit shows no signs of starting, place a jumper across the thermostatic control.

Final check if the unit fails to start, check terminals with 230 volt test light.

In the second service call in your article the serviceman could have known what he was talking about, since it is possible to rock a single phase unit, as well as a three phase unit.

Usually on this kind of a call where the unit is near warranty expiration, I'm sure I would urge the customer to replace the start capacitor and overload since the cost would be around \$10.

J. L. KRAUSE  
Pittsburgh, Pa.

### ...asks genuine help in training servicemen

EDITOR:

I have read your article "It's a Crime," and your report holds water to an extent. But what we need is help, and the cooperation of the airconditioning industry in training service personnel.

Let's look at some of the demands placed upon a serviceman: He must be a competent mechanic, a good salesman, psychoanalyst, bill collector, baby sitter, conversationalist, and a knowledge of three or more languages helps. He must also be able to discuss problems of design, maintenance and trouble shooting with an engineer or an architect as well as with a customer whose main concern is cost.

A serviceman's mechanical ability must be such that he is capable of working with such elements as water, gas, (natural, mixed, LPG, nitrogen, CO<sub>2</sub>, oxygen, acetylene) refrigerants, electricity, building materials, chemicals, and metals.

Add to this, few good aircondi-

tioning products on the market and a dozen of inferior quality and you have a serviceman's nightmare.

Is the manufacturer training service personnel? Well, there may be a 2-day school once every two or three years, but this is usually nothing more than a sales promotion stunt. Then too, there is the problem of expenses in traveling to and from many of these schools.

The distributor usually doesn't have the information or know-how to train service personnel. The contractor does train them to some extent, but considers service a necessary evil.

TED SZEWCHYK  
Reliable Air Conditioning Co.  
San Jose, Calif.

### ...wants further probe

EDITOR:

We have just read the article "It's a Crime." As long as you are trying to point out the weaknesses of airconditioning service, I suggest that you take your survey further. Why not get down the other reasons for poor service?

I feel that a great part of the crime is at the manufacturer's door. First of all there is no standardization. As a result you may be able to do a good job with one unit and not another. Secondly, the manufacturers of many units make little effort to give service information.

P. K. WADSWORTH  
P. K. Wadsworth Heating  
and Cooling  
Cleveland, Ohio

### ...uses article to sell dealers on school

EDITOR:

I have just finished reading "It's a Crime" in your November issue, and would like to congratulate you on your excellent article, and especially the factual way it is presented with evidence to back it up.

A part of our forthcoming dealer meeting will be devoted to trying to sell the dealers on having their service people attend a weekly service school which we will conduct. We feel that this article will be a great help in getting across the need for a good service school.

W. E. McLEOD  
Central Air Conditioning &  
Heating, Inc.  
Nashville, Tenn.



# DU PONT ANNOUNCES...



## *New "Zephyr" Containers for "Freon" Designed for Your Convenience*

- Built-in carrying handle
- Can be used upright or inverted
- Can be stacked
- New handwheel valve
- Lighter in weight
- New 50 lb. size

These new "Zephyr" containers can be used either upright or inverted without special blocks or stands. A permanent collar protects the valve and serves as a built-in carrying handle. These are the

only refrigerant containers that can be stacked one on top of the other. They are shorter—lighter—easier to carry. A 50 lb. size is now practical. No wrenches are needed because these new containers also have a new type handwheel valve. They will stand upright in your truck.

"Freon-12" and "Freon-22"—the premium quality refrigerants—are now available in these new "Zephyr" containers in 25 and 50 lb. sizes from your *leading* air conditioning and refrigeration wholesalers. Place your order for "Zephyr" containers today.

*Please turn page for another announcement* ➤

# NEW TOP *and* VALVE

*are being added for your convenience  
to Standard 25 lb. cylinders for "Freon"*



This new "Spintop" cylinder is now available in addition to the Standard 25 lb. cylinder with hood cap. The "Spintop" is a convenient carrying handle, valve protector and stand. Being free to rotate, it provides easy access to the valve. The regular valve has been replaced with a convenient handwheel type that includes a special spring-loaded pressure relief device for added safety.

## *Now—a Container for Every Use*

For your convenience "Freon" refrigerants are offered in a family of containers\*. Each of these types of containers has its own distinctive advantages. The container that best suits your needs is available from your leading air conditioning and refrigeration wholesaler. Call him today for your order of "Freon" refrigerants.

\*1 or 2 lb. "Can-O-Gas" containers of "Freon" refrigerants are available from the Virginia Smelting Co., our nationwide sales agent and authorized repackager.



# FREON<sup>®</sup>

*premium quality*  
refrigerants



Better Things for Better Living  
... through Chemistry

by Arthur H. Farr

## THE HEAT PUMP PRIMER—Part 8

PREDICTING summer operating costs of a residential heat pump installation is a mighty tricky business.

First, as I have pointed out previously, there is no such thing as a "normal" or "average" summer. Day-to-day weather during the cooling season is extremely variable. Wide swings in both temperature and humidity are the rule, not the exception.

Second, total operating hours of the cooling unit will depend upon the balance between equipment capacity and heat gain to the structure. An oversized unit will operate less during in-between seasons of mild weather than will an undersized unit, and it is fairly common to find heat pumps installed with an excess of cooling capacity.

Third, operating cost of the home heat pump installation will depend to a very large degree upon the living habits of the occupants.

So, recognizing all the variables involved, we can now proceed to estimate the cost of heat pump operation for summer cooling in the same Columbus, Ohio, residence which we used as an example in calculating heating costs in Part 7 of this series (March 1960 issue).

There's no denying that we need some sort of a guide for assessing the need for summer cooling. But for this purpose I firmly believe that temperatures (both dry and wet bulb) as recorded by local weather bureaus gradually will be replaced by some method based upon the Temperature-Humidity Index (T.H.I.).

Since the T.H.I. concept is somewhat new, it will take time to convert old weather bureau records to this new index. Meanwhile, the hours of cooling unit operation set out in Table I, Part 6 (January 1960 issue) can be used as a guide for estimating cooling costs by the degree-day method.

Referring to this table we find that for Columbus, Ohio, 650 hours of operation are required for cooling. If we consider that the entire 650 hours requires 2-stage operation of the heat pump unit, which has a 5.40-kw input at ARI conditions, then we can compute the power input and cost for the entire cooling season as follows:

$$650 \text{ hours} \times 5.40 \text{ kw} = 3510 \text{ kwh}$$

$$3510 \text{ kwh} \times \$0.15 = \$52.65 \text{ per season}$$

On the other hand, if we consider 50% of the hours of operation to be 2-stage and the other 50% 1 stage operation of the unit

(3.28 kw), the season cost would be somewhat reduced as follows:

$$\frac{650 \text{ hours} \times 3.28 \text{ kw}}{2} = 1066 \text{ kwh}$$

$$\frac{650 \text{ hours} \times 5.40 \text{ kw}}{2} = 1755 \text{ kwh}$$

Total 2821 kwh

$$2821 \text{ kwh} \times \$0.15 = \$42.32 \text{ per season}$$

If we use the higher of these two estimates, and combine it with the previously calculated seasonal heating requirement, we get a total operating cost for the year as shown here.

$$\begin{array}{l} \text{Heating} \\ \text{Season } 19,436 \text{ kwh} \times \$0.15 = \$291.54 \\ \text{Cooling} \\ \text{Season } 3,510 \text{ kwh} \times \$0.15 = \underline{52.65} \\ \text{Total annual cost } \$344.19 \end{array}$$

The over-simplified short form method presented in Part 5 of the Heat Pump Primer (November 1959) gave us a total annual operating cost of \$195.24, so you can see that a rather wide differential exists between the two methods. Remember, however, that the short form method includes no allowance for defrost kw, and the summer compressor running time was considered as follows:

$$\begin{array}{l} 50\% \text{ total hours—} \\ 1 \text{ stage operation at } 2.94 \text{ kw input} \\ 50\% \text{ total hours—} \\ 2 \text{ stage operation at } 4.70 \text{ kw input} \end{array}$$

In contrast, the degree-day method considers all of the summer operating hours to be at full load with 2-stage compressor operation and an electrical input of 5.40 kw.

If we revise the short form method to show the 800 summer cooling operating hours at full load with 2 compressors running at 3.40 kw input, the total an-



# SNIFTER KEEPS KEROTEST QUALITY UP TO SNUFF!



## LEAKPROOF CONSTRUCTION

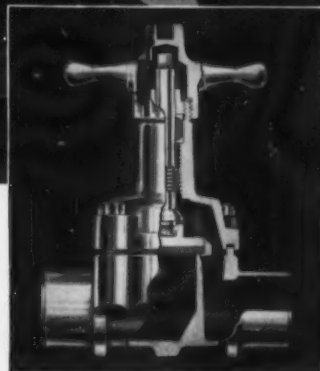
By passing the probe of this electronic leak detector along the joints and seams of the valve, the Kerotest laboratory technician can spot a leak as minute as 1/100 of an ounce per year. To simulate actual in-line use during the test, the Kerotest packed globe valve being checked out here is fed a tracer gas and subjected to 290 psi.

Kerotest employs more than a half dozen routine quality control tests on raw materials and in manufacture and final valve assembly. It's one of the important reasons why Kerotest valves last longer, perform more efficiently and economically.

**ASK FOR KEROTEST VALVES  
AT YOUR LOCAL WHOLESALERS**

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### KEROTEST R12 PACKED GLOBE VALVE

The high quality brass valve for all types of refrigeration and air conditioning systems, nitrogen, oxygen (degassed), compressed air and liquefied petroleum gases.

Specify and use the R12 packed globe valve for operating pressures up to 500 psi and temperatures up to 200° F.

### KEROTEST QUALITY CONTROLLED FEATURES

- Generous areas assure ample flow
- Swivel type self-compensating seat
- Leak-lok bonnet design
- Repacks under pressure
- Positive shut-off
- Quick seating disc for easy operation

R12 series 3/8" through 2 1/2" forged brass  
R10 series 2 3/8" through 4 1/2" cast brass

# KEROTEST

nual heat pump operation would be increased as follows:

2000 hours heating:  
50% on 1 stage, 50% on 2 stages  
800 hours cooling:  
All at 2 stage (5.40 kw input at 95 F)

Then the short form calculation for total annual cost of operation would be revised like this:

(Heating)	
1000 hours x 2.94 kw x \$.015 =	\$44.10
(Heating)	
1000 hours x 4.70 kw x \$.015 =	70.50
(Cooling)	
800 hours x 5.40 kw x \$.015 =	64.80
(Heating)	
Plus supplemental electric heating	= 34.80
<b>Revised total annual cost</b>	<b>\$214.20</b>

On the other hand, 1588 kw representing \$23.82 was added to the seasonal heating cost on the degree-day method to cover de-icing requirements, so this amount should be subtracted before comparing the results obtained by the two methods.

Total annual cost (degree-day method)	= \$344.19
Less: provision for de-icing requirements	= 23.82
<b>Annual cost (for comparison only)</b>	<b>\$320.37</b>

Thus, it appears that the two methods are over \$100 apart in the annual cost. This would break down to roughly \$9 on each monthly bill.

As these comparisons show, the degree-day method is more conservative than the short form method. I am convinced that any estimates prepared by this method would be easier to live with over the period of the first year or two when a new heat pump owner usually is most critical of his monthly operating costs.

It is interesting to note that the total annual estimated cost of operating a heat pump in the 1390-sq.ft. sample residence in Columbus, Ohio, with outside design conditions of 95 F db. (cooling) and -10 F db (heating) is only \$344.19. This breaks down to an average cost per month of \$28.96—a figure which would attract many prospective buyers to the heat pump way of living.



# Are You Paying Premium Prices For Your Pipe Wrapping?



Now...cut costs, reduce inventories and profit more  
with the one standard insulation that fits every  
pipe and fitting, meets every service requirement!



NoDrip Tape means more profit, less work on every job... saves you time, labor, material. NoDrip Tape eliminates most multiple wrappings needed with thinner wraps... inferior wraps.

Why pay more when you can buy the handy 16 foot roll of ¼" thick NoDrip Tape at less than half the cost of a roll of ordinary ½" wrapping... and far below the cost of pre-formed foam cellular insulations?

Next time an equipment cold line job

calls for *permanent* protection against condensation drip, "sweating" or frost, insist on using NoDrip Tape. Stops rust and corrosion, too... holds temperatures more constant and increases the efficiency of the cooling equipment.

NoDrip Tape is pliable, cork-filled and completely self-adhering. Easy to work with... forms an air-tight, 100% vapor and moisture proof jacket. Needs no tools, vapor seals, fasteners, brads or adhesives.

**NO DRIP PLASTIC  
COATING...  
PROTECTION FOR  
BIG AREAS**



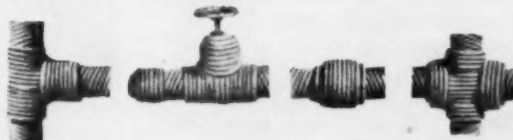
For large pipes, tanks, air ducts, we recommend NoDrip Plastic Coating for permanent protection from condensation, rust and corrosion. Another fine Mortell refrigeration product, NoDrip can easily be applied by brush or trowel to metal, concrete, brick, plaster, tile or composition surfaces.

**Mortell  
COMPANY**

Makers of Mortite Caulking Cord and Mortite Caulking Gum

*Easier to Apply...*

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Name.....  
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Lloyd Fagan

MOD. NUMBER 14  
SERV. MAN. NUMBER  
TELEPHONE NUMBER MA 1-4041  
REMARKS Central System  
Pressure Switch Cut-Out.  
Added Refrigerant  
Checked Operating Cycle

TIME RECEIVED  
Mar 30 8 40 AM  
TIME DISPATCHED  
Mar 30 10 21 AM  
Mar 30 10 50 AM  
Mar 30 11 59 AM  
TIME COMPLETED

STATUS ☒ COMPLETE  
☐ NOT AT HOME  
☐ ORDER PARTS  
☐ PICK UP FOR SHOP REPAIR  
☐ CANCELED  
☐ INCORRECT ADDRESS  
☐ CHECK BACK NEXT DAY  
☐ OTHER

CHARGE ☒ F.O.D. ☐ WARR. ☐ POLICY ☐ CALL NUMBER

dispatcher gets service call  
serviceman assigned to job  
serviceman arrives at the job  
serviceman completes the job

by Ron Henry, assistant editor

## efficient service dispatching is JUST A MATTER OF TIME

SKILLFUL USE OF TIME CARDS coupled with a radio dispatching system has enabled United Refrigeration Service, Inc., of Columbus, Ohio, to handle 25% more service calls. The two dispatchers use the cards, two phones, wall maps, and an elaborate file and check system to trim wasted time between service calls.

Before United installed the card-and-dispatch routine, each serviceman received a limited number of calls each day. He was supposed to call in during his rounds, but rarely did. Now these men receive one call at a time. Efficiency has increased to where the same crew can handle an emergency call, if phoned in before 4 p.m., by the end of the work day.

On one wall of the dispatch-

ing room are columns of aluminum pockets for the cards. Each column is headed with the name of the serviceman, his car or truck number, and the repairs he can make.

United classifies its servicemen as specialists in the repair of

either household appliances (including airconditioning), washers, or commercial refrigeration equipment. Some men are capable of repairing more than one type of equipment.

There's at least one specialist in each type of repair for each

**TWO DISPATCHERS** keep tight control over servicemen by means of a 2-way radio and time cards. Cards are kept for each serviceman in aluminum envelopes on wall at right.



part of Columbus. At any time, United can rush the right man to the job. Huge wall maps help the dispatchers make assignments. Usually, men work in territories near their homes.

When a call comes in for a repair job, one of the dispatchers writes the facts on a time card and stamps the time on it. If the call is an emergency, the next serviceman calling in from that area gets the job. If the call is routine, the dispatcher may assign a serviceman later that day or schedule it later in the week.

### Card Stamped 4 Times

When the job is assigned, the dispatcher time stamps the card again. He punches a third time when the serviceman calls to say he's on the job. The final time stamp indicates job completion. With this system, it's possible to wrap up a call, from start to finish, in less than 30 minutes.

The cards have colored bands at the top. Blue indicates Monday; yellow, Tuesday; red, Wednesday; grey, Thursday; orange, Friday, and manila, nights and weekends. These colors help dispatchers to quickly recognize, file, and assign jobs for particular days.

### Men Have Busy Mondays

During the weekend, calls are taken for the week ahead on a first-come, first-served basis. A typical Monday's work for one serviceman may include six assigned calls plus three emergencies. Tuesday's calls start with Monday's overflow, plus calls promised for that day. And so it goes all week.

A card remains in its aluminum pocket until the job is completed. Dispatchers also make out and keep cards for all in-shop, night, and weekend work. A serviceman is on call and a dispatcher on duty round-the-clock for emergencies.

Sometimes repairs cannot be made at the time of the call. There's room for this information on each time card.



### STREAMING CROWDS

(above) head for tents set up by Marco Sales for showing its new lines. Inside, visitors packed the product displays.



Make your next product showing

## A Carnival for Fun and Profit

YOUR SHOWINGS OF NEW LINES can be fun for everyone . . . and profitable, too!

A St. Louis, Mo., distributor proved this point when he introduced his new line of Carrier airconditioning and refrigeration equipment amid a carnival atmosphere, complete with tent and pavilion.

Kenneth A. Roffman, president of Marco Sales, Inc., planned the 3-day affair. He set up his equipment display in a 70' x 30' tent erected on a large picnic ground rented from a country club.

In a nearby building, Roffman and his staff, aided by Carrier engineers, conducted sales meetings. At the same time, wives and children of guests played games for prizes and were treated to refreshments in the building's basement.

Each day the theme was changed to fit the audience.

The first day, more than 200 persons attended. In the audience were architects, hospital and hotel administrators, school board members, and utility representatives. Three lecture sessions were held, stressing, in turn, residential, commercial and heat pump equipment and applications.

Dealers attended the second day. The general public, drawn by a radio and newspaper campaign, came the final day and provided dealers with 30 good leads.

Roffman said, "... the tent type of display is very practical and does not detract from the dignity of the products. There is economy in serving picnic-style sandwiches and soft drinks. . . . business obtained can go a long way toward paying for the whole affair."

# Ranco Offers NEW COMMERCIAL CONTROLS for you to specify...

## New Double Pole "O" Type Switches

Have wide product application  
for commercial refrigeration and  
air conditioning equipment

New double pole, single throw "O" Type Commercial Controls by Ranco are designed for a variety of two pole switching jobs—provide a double break for single-phase operations, simultaneous switching of two circuits, or switching two lines of a three-phase circuit. Available in Single Unit Models for low pressure, high pressure and temperature; and in Dual Models for dual pressure or dual temperature. Controls handle one, two and three-phase motors of  $\frac{1}{2}$  through 5 hp. capacity. Safety (High) limit stop may be added to the range screw on the high pressure side of a Dual Pressure Control, or to a Single Unit Control that cuts out on rise in pressure or temperature. Contact your local Ranco wholesaler—or Ranco Incorporated, Columbus 1, Ohio, for more details.



### 020 SINGLE UNIT CONTROL (Above)

Standard switch action. Contacts open on decrease in pressure or temperature.

### 021 SINGLE UNIT CONTROL (Not Shown)

Reverse switch action. Contacts open on increase in pressure or temperature.

Manual reset is available on both 020 and 021 Single Unit Controls.

### 022 DUAL UNIT CONTROL (At Left)

Combines high pressure with either low pressure or temperature. Both sides operate automatically—or manual reset may be added to either high pressure side only, or to both low and high pressure sides.

**To Servicemen:** Procure Ranco Service Manual No. 1660 from your Ranco wholesaler. It lists "O" Series Controls; covers nearly 5,000 other Ranco replacement applications. (Not available from the factory.)



**Ranco**  
INCORPORATED  
COLUMBUS 1, OHIO



Circle No. 39 on Reader Service Card

MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS



## Get the Most Out of Your Unit Heater Installations

**EDITOR'S NOTE:** This concludes an article on unit heaters adapted from material prepared by Janitrol Div., Midland-Ross Corp. Part 1, published as last month's "Here's How" feature, told how to select and apply these heaters as individual units.

MOST PEOPLE THINK of a unit heater only in terms of heating a single room. But suppose you want to heat one or more adjacent areas with this same unit heater? If the heater has sufficient capacity to handle the combined load it's a simple matter to get the warm air where you need it by using short runs of duct (Fig. A).

In installations of this type be sure the supply duct originates with complete cross-sectional coverage of the face of the unit. Don't make the run of duct more than 10' long. Be sure the duct runs straight out from the face of the unit for at least 1' before making any bends or branch takeoffs. Equip every turn or bend with air vanes.

You also can use unit heaters for a number of special applications. For instance, they provide an economical means of controlling unusual drafts and heat losses caused by large doors being open for extended periods, as in garages or warehouse shipping areas, by providing a warm air curtain for the door (Fig. B).

To accomplish this, mount the unit heater—or more than one if necessary—in such a way that it discharges the heated air across the opening, not toward it. Locate a thermostat close to the door so that the heater will operate only when required.

Many unit heater manufacturers offer special accessories to solve special application problems.

Vertical louvers can provide distribution of heated air far to the side of the normal flow pattern.

Splitter nozzles permit distribution of air in two equally divided streams. Like the vertical louvers, these nozzles attach to the face of the unit heater. Some are equipped with dampers to permit adjustment of the air flow.

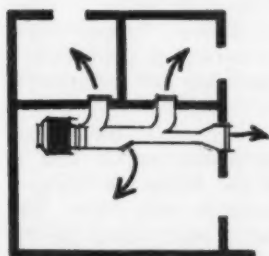
High velocity 90-degree nozzles (see last month's Here's How section) can force warm air down to floor level when unit heaters have to be mounted above recommended height.

Best of all, from the standpoint of the refrigeration and airconditioning contractor-dealer, is the way that unit heaters in the form of duct furnaces can be tied in with cooling units to provide year-round airconditioning. You can readily design a complete suspended year-round system by combining a duct furnace with a blower-coil packaged cooling unit in either a bypass duct (Fig. C) or split duct (Fig. D) arrangement.

Where the bypass duct is used the preferred practice is to install the cooling coil in the straight-through duct and the duct heater in the bypass. A damper controls the flow of air so that in summer the cool air flows straight through without diversion, while in winter the air is directed through the bypass.

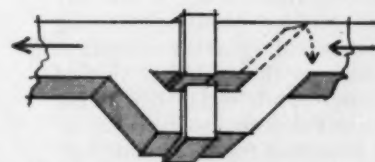
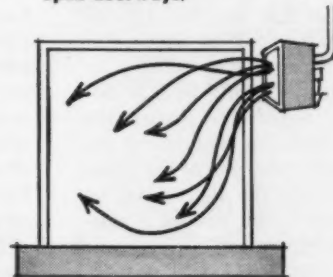
Where the split duct system is used, the damper directs the air through either the cooling branch or heating branch as required.

Where there is a remote air supply of sufficient capacity, but space is limited, you can install a duct furnace and cooling coil in series in a single duct, with the furnace upstream from the cooling coil.

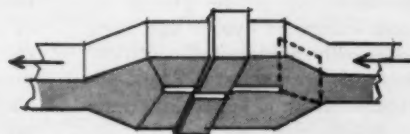


(A) Ducted heating from one unit heater.

(B) Warm air curtain for open doorways.



(C) Bypass duct for year-round system.



(D) Split duct for year-round system.



## WATCHDOG FOR COOLING SYSTEMS

... a special report on a new approach to preventive maintenance for refrigeration and airconditioning equipment



**WARNING** at first sign of trouble is picked up by electronic probe (left) in liquid line and relayed to indicator unit (top photo).

by Jim McCallum, editor

THE BEST TIME to stop trouble in a refrigeration or airconditioning system is before it really starts.

Until recently, this was much easier said than done. But now there's a new warning device on the market that has been designed by an electronic engineer to keep constant watch over any refrigeration or airconditioning system and signal the equipment owner at the very first sign of many conditions that might cause the system to malfunction.

Known as the "Electronic Sentry" this unit is manufactured by Televalence Corp. and is being distributed through normal trade channels. No mere gleam in some designer's eye, it has been extensively field tested on a variety of applications from refrigeration for a supermarket to airconditioning for a drive-in restaurant.

Results of some of these tests have been thoroughly documented, and there's strong evidence that the Electronic Sentry may prove to be a real step forward along the road to improved maintenance of refrigeration and airconditioning systems.

In simplest terms you might describe the Sentry as a sort of electronic sight glass. It consists of a sensitive electronic signal device actuated by a probe in the liquid refrigerant line. It gives either a visible or audible signal, or both, at the very first sign of a refrigerant leak or any other trouble causing gas bubbles to appear in the liquid line. It detects and signals the occurrence of any condition that might result in non-operation of the compressor while the thermostat or compressor motor control is calling for refrigeration.

According to Gail Garner,

president of Televalence, this means that it will promptly warn of such common service problems as an inefficient compressor, defective compressor motor, broken or badly slipping v-belt, flash gas condition, restricted drier or strainer, loose motor pulley or compressor drive pulley, tripped reset or motor thermal overload device, tripped high-pressure cut-off, or the presence of air or other non-condensable gases in the system.

Best thing about the Sentry, Garman points out, is that it does all this *before* the refrigerant charge is lost, *before* any temperature rise occurs in the refrigerated or conditioned space, and *before* any costly chain reaction of mechanical failures can develop from the original difficulty.

Basically the Televalence Sentry consists of two components—an

electronic sensing probe and an electronic control unit.

The sensing probe is located in a tee in a horizontal section of the liquid line. It electronically senses the difference between liquid and gas surrounding the probe, and immediately transmits this information to the control or indicator unit.

#### **Control Unit is Key**

This control unit consists of an ac transformer for a power supply, a thyatron tube, a magnetic relay, a thermal time delay circuit, and the necessary resistors and capacitors to make the unit function. All this is assembled in a small cabinet which can be mounted anywhere near the condensing unit where it is clearly visible and accessible.

On the cover of this cabinet is the red trouble indicator light plus a green pilot light, a white on-cycle light, a test button, an on-off switch, and a fuse housing.

In operation, voltage is supplied to the transformer, which in turn supplies the voltage to the thyatron tube, thermistor probe, and pilot and alarm lights. These are connected in such a way that the thyatron tube conducts and picks up a relay any time there is gas in the liquid line.

#### **Here's How Sentry Works**

If the tube conducts at a time when the indicator unit is active, the big red trouble light in the center of the indicator panel will come on or an audible alarm signal will sound, or both. The indicator unit is active only during the time the thermostat or pressure control device is calling for refrigeration. A remote alarm unit also is available.

Function of the green pilot light is to show at a glance whether power is on to the Sentry and to indicate a blown fuse in the compressor motor circuit. Operation can easily be checked by pressing the test button.

The white on-cycle light is wired to come on approximately

*Continued on page 113*



**FLAKED ICE** from these machines goes directly into the yeast-making operation at the Anheuser-Busch brewery.

## **Flaked Ice Machines Aid Brewer's Art**

FIVE ICE MAKING MACHINES make brewing easier for Anheuser-Busch, Inc. The units, installed at the St. Louis, Mo., yeast plant, produce 25,000 lb. of instant ice flakes daily.

Brewery yeast-making specialists set up requirements for the ice they used in production. Their ice had to be dry, hard, completely frozen, uniform in size, and free of contamination.

Previously, block ice was used. Loaded into carts at the plant loading dock, the ice was transported to the third-floor storage area. There it was washed and crushed before going to the mixing machines.

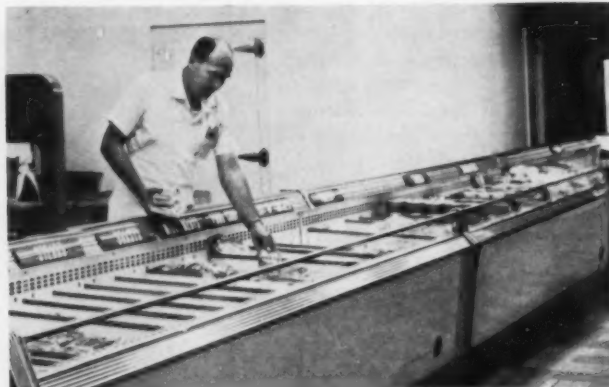
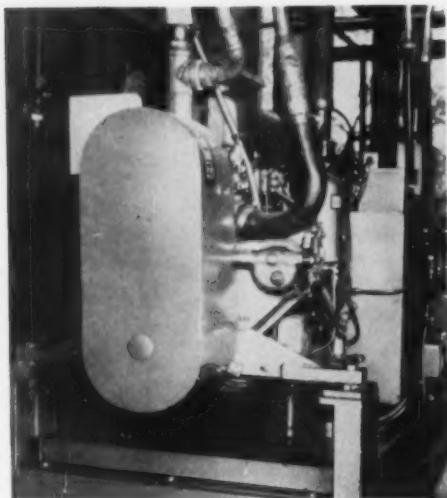
Now the flakes feed directly into the yeast mixing and tempering machines. Rigid purity controls govern the water going to make the ice. Since ice is used right after being made, it remains pure and sterile.

Another consideration was quality control. Irregular chunks of ice give excess moisture, causing blemishes in the finished product. Ice flakes produced by the machines are uniform.

The controlled moisture weight of ice flakes and their efficient cooling assists the yeast-maker in keeping positive control during production. Evenly distributed, the flakes maintain constant moisture content throughout the finished product. This constant moisture content is necessary to form the 1- and 5-pound yeast blocks in the packing machines.

The high refrigerating capacity of the ice flakes offsets the chemical and mechanical heat generated in yeast-making. Proper temperature is maintained in the finished product prior to its entering the cooler storage area.

An added advantage found in the use of the Liquid Freeze machines has been a sizable reduction in ice costs reported by Anheuser-Busch.



**13 TONS OF COOLING** are delivered by the gas engine-driven compressor (left) to airconditioning and refrigeration equipment in Ward's Foodland such as the 36' self-service meat case above. The compressor is located in an equipment shed behind the market.

## Gas Cools People and Produce At Supermarket

Is a GAS-OPERATED airconditioning and refrigeration system practical for a supermarket? Everett Ward, owner of Ward's Foodland in Prescott, Ark., figured it was. To prove it, he installed such a system. He even went one step further and installed a generator driven by natural gas to furnish all of the store's electrical needs.

All refrigeration equipment in the modern market, except the sub-zero frozen food and ice cream cases, is cooled by a gas engine-driven compressor located in an equipment shed behind the market. The gas-refrigerated equipment includes a large meat walk-in cooler and a small product walk-in, a 36' self-service meat case, a 24' vegetable case, and a 12' triple-deck dairy case. Together the equipment represents about nine tons of product refrigeration.

All of the cases used are of standard design. The only modification necessary was a special thermostat for each case.

The same gas engine-operated compressor which services the refrigerated cases also provides 13 tons of cooling for the 5000-sq.ft. customer area of the food market.

Here's how the system operates. Refrigerant is condensed to liquid in an evaporative condenser and distributed to the food preservation equipment via individual refrigeration lines running through a floor trench to each group of cases. The expanded refrigerant gas is returned to the compressor by a common suction piping system.

A control system automatically actuates the compressor to satisfy refrigeration demand in any part of the system and automatically stops the gas engine in case of a malfunction, or when the demand is satisfied for all cases.

Provision is also made for timed defrosting of each group of cases; the walk-in coolers are manually defrosted. Automatic changeover from summer to winter operation is achieved by an outdoor thermostat circuit. Engine speed modulates to balance the compressor capacity to the load at any time, regardless of conditions.

An alarm system rings a bell in the market's office in case of compressor failure; by means of a leased telephone circuit, the system also sounds an alarm at the home of the market's owner in case of trouble.

The supermarket is airconditioned year-round by one central air handling unit suspended above the ceiling at the rear of the store. A direct-expansion coil provides the 13 tons of cooling with two-stage thermostat control.

A small hot-water coil furnishes winter heating; hot water is circulated to the coil from a small package boiler which is located in the equipment room.

A duct system above the ceiling distributes cool and warm air through diffusers throughout the building.

The system was designed by Arkansas Louisiana Gas Co.





"I don't think much of moisture indicators..."\*

\* PERHAPS THAT'S BECAUSE YOU HAVEN'T TRIED ANSUL'S BRAND NEW "200" DRY-EYE, SIR! In this unique refrigeration service aid, the Refrigerant-12 indicator, the Refrigerant-22 element and the sight glass are combined in one unit which screws out easily, in one piece, to permit worry-free soldering of sweat connections. No jig-saw puzzles to put together when you have to remove the core of the unit . . . no possible way of damaging the elements during installation. | Most moisture indicators are notoriously inaccurate in showing the moisture content of Refrigerant-22. Refrigerants vary markedly in their moisture characteristics and an R-12 indicator just won't do the job on 22. However, the "200" Dry-Eye has a separate, true Refrigerant-22 indicator—painstakingly designed to show scientifically the moisture content that signals danger in R-22 systems. | "200" Dry-Eyes are available in all standard sizes, flare and sweat, in both the in-line models (L-200) and the popular T models (T-200). This latter, when attached to the Ansul T-Flo Drier, provides a complete moisture control system. See them now at your refrigeration wholesalers' or write directly to the Ansul Chemical Company for additional information.



**ANSUL**



ANSUL CHEMICAL COMPANY • MARINETTE, WISCONSIN | FIRE EXTINGUISHING EQUIPMENT • REFRIGERATION PRODUCTS • INDUSTRIAL CHEMICALS

Circle No. 40 on Reader Service Card

## Finished Job Does Real Selling, Ray Winther Tells NCRSA Members

"PERFORMANCE OF THE FINISHED JOB is what does the real selling in our business," says Ray Winther, president, National Commercial Refrigerator Sales Association, and president, Ray Winther Co., South San Francisco, Calif.

Speaking before the 13th annual convention of NCRSA Winther told members what he does to sell customers on the value of purchasing equipment from distributors.

"Price and value are two entirely different things," Winther explained. "Price is the cost of the bare job; value is that intangible of desire and performance on the part of the distributor that makes the job perform to the complete satisfaction of the buyer without harass, threats, delays, or litigation.

"While the customer is fully aware of the problems involved in market design and construction, he needs help in the 'foot work' required to put a new store together, and this is a value which distributors perform.

"As distributors we are in a position from our knowledge of local conditions, to assist in appraising probable locations, and even in obtaining the lease.

"The next value we provide is one of financing the fixturing of the job, and in some instances, we have aided in putting together the building financing.

"Store layout is another value. This is a function best performed by the distributor who is on hand, and knows the desires and point of emphasis of each operator. Even where location and financing services may not be of value to the chain, a local man on hand for the store layout and

its technical details is of real worth.

"We perform store layout, back room planning, electrical layout, plumbing layout, lighting plan, and incidentally, the refrigeration plan with proper piping size for satisfactory performance. These are values far beyond price, but they are services essential to our customers complete satisfaction.

"Co-ordination of the job is one of the most important values we deliver to our customer. Anytime fixtures, cases, or other equipment is delivered before the floor is ready to receive it we store the equipment. If equipment arrives damaged, we substitute pieces from our own floor stock, and do not delay the customer until another piece can be shipped from the factory.

"To upgrade our industry it

behooves all of us to deliver more and more values to our customers," Winther concluded. "As distributors we can increase the importance of our position in the industry and to our customers by selling performance.

### NCRSA GETS 6 MEMBERS

Six new members have been added to the rolls of National Commercial Refrigerator Sales Association. They include Ace Refrigeration Sales & Service, Inc., Gary, Ind.; Anchor Refrigeration & Air Conditioning, Inc., Dayton, Ohio; Baubie Refrigeration & Air Conditioning, Jackson, Mich.; George Domet Co., Omaha, Neb.; Federal Air Conditioning & Refrigeration Ltd., Ottawa, Ont., Canada; Friedrich Distributing Co., Oklahoma City, Okla.

### NAMES REPRESENTATIVES

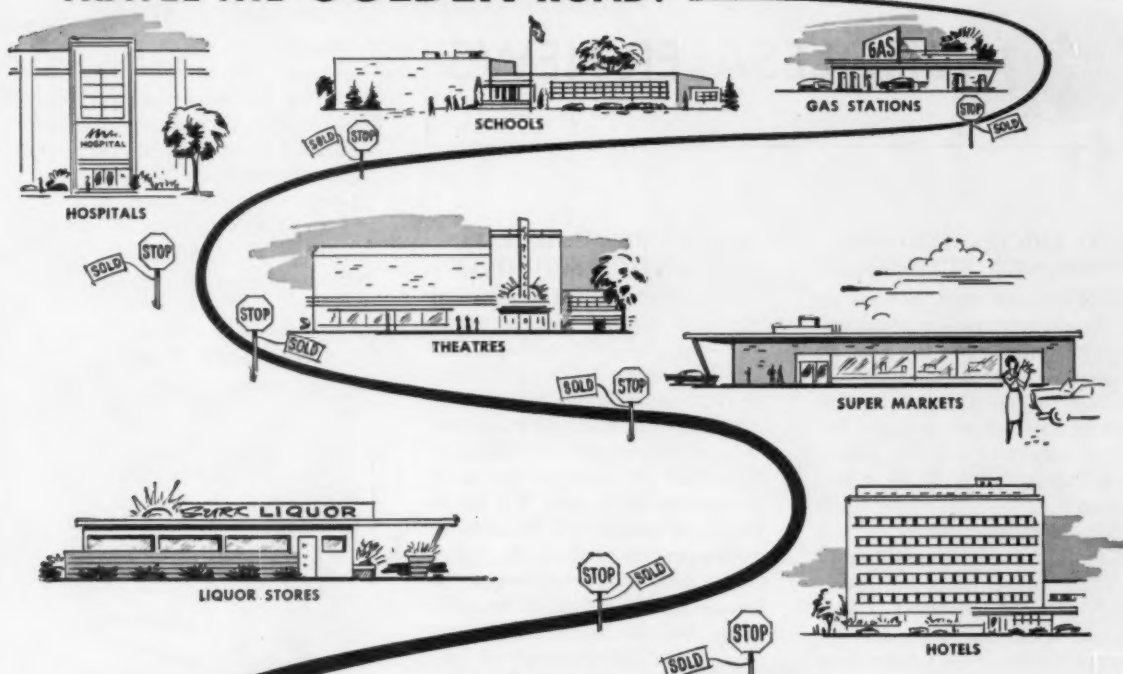
Two new manufacturers representatives have been appointed by heating and airconditioning division, Century Engineering Corp. They are Everett W. Johnson, Fort Dodge, Iowa, covering the western half of Iowa and all of Nebraska, and George G. Wolfe Sales Associates, Glen Ridge, N.J., covering New York, New Jersey, and Pennsylvania.

### AUSTRALIAN STORE TAKES ON U.S. LOOK



**3-DECKER DOWN UNDER!** This 24', three-deck refrigerated merchandiser installed by Myer's Emporium in Melbourne, Australia, reportedly the largest such store in the Southern Hemisphere, shows the influence of American food merchandising. The new cases were built from engineering drawings furnished by Sherer-Gillett Co., Marshall, Mich., in affiliation with manufacturers Sherer-Pennant Pty., Ltd. The store also installed 16' of low temperature models for frozen foods.

## TRAVEL THE GOLDEN ROAD!



### FOR BIGGER PROFITS

## SELL SCOTSMAN'S GOLDEN 50!



**YOU MAKE MORE MONEY** with Scotsman because you can offer the right ice machine to fit any ice need! You have more to offer prospects—50 Super Flakers, Super Cubers, Bins and Dispensers—more places to cash in on the Scotsman line!

**AND SCOTSMAN HELPS YOU** sell these prospects! Effective national ads . . . a new book, "How to Use an Ice Machine" to leave with prospects . . . deluxe brochures . . . new ad mats . . .

direct mail pieces . . . a sensational new demonstration kit . . . everything you need to make Scotsman Ice Machine sales.

**AND DON'T FORGET:** As a Scotsman dealer, you're backed by a national organization devoted entirely to ice machine sales and service. Ice machines are the mainline—not a sideline!

**BECOME A SCOTSMAN DEALER** . . . get your share of the big profits. Send coupon for complete details today!

### MAIL COUPON TODAY!

# SCOTSMAN

*Modernize with Modern Ice!*

## ICE MACHINES



**YES!** Send me complete information about a franchise for Scotsman Ice Machines.

NAME

ADDRESS

CITY  ZONE  STATE

**MAIL TO: SCOTSMAN ICE MACHINES**

Queen Products Division, King-Seeley Corporation

544 Front Street, Albert Lea, Minnesota

EXPORT OFFICE: 15 William St., New York, N. Y.

Circle No. 41 on Reader Service Card



## WHOLESALE NEWS

### AUTO AIRCONDITIONING OFFERS NEW BUSINESS

New horizons have opened up for the refrigeration and airconditioning industry in the form of automobile airconditioning, according to Joe Hoopes of DuPont in a presentation given before members of Air Conditioning & Refrigeration Wholesalers, Region 3.

"The fact that over 1/2 million automobiles were airconditioned in 1959, makes this big business," Hoopes reported. "This volume opens the door for increased business for wholesalers and the trade. Service requirements will demand a local source of supply on parts and manpower. It would be well for each local wholesaler to call on the automobile agencies and acquaint them with their services."

Hoopes then cited figures and statements made in a pilot study of airconditioning dealers in five cities. The prime complaint of dealers was the lack of profit in this business.

"Without adequate profit for stability and growth at the dealer level, this industry will be hard pressed to meet the projected growth," Hoopes concluded. "And efforts at the manufacturer and wholesaler level must be continued in order to improve the profit picture for dealers."

### ROLLINS SALES MANAGER OF MOORE & HANKS CO.

Hank Rollins has been appointed general sales manager of Moore & Hanks Co., commercial refrigeration manufacturing and distributing firm in El Monte, Calif.

He joined the company more than two years ago, following 12 years with Carrier Corp. and 3 1/2 years with U.S. Airco.

### ARW MEMBERS RECEIVE CONVENTION SCHEDULE

Complete details regarding the 25th annual convention, to be held aboard the S.S. *Hanseatic*, cruising in the Caribbean, have gone out to all ARW members and manufacturer suppliers. The convention is scheduled from Oct. 28 through Nov. 2. It is expected that over 300 members and guests will be aboard.

Convention headquarters have been set up in Chicago to handle all the details of reservations. Anyone interested in getting more information on the convention, write or call: ARW Convention Headquarters, 36 So. Wabash Ave., Chicago 3, Illinois.

### REFRIGERATION COMPANY OPENS KINGSTON BRANCH

Donald Reid has been appointed manager of the new branch sales warehouse opened by Marshall Refrigeration Co. Ltd. The warehouse, at 161 Colborne St., Kingston, Ont., will maintain complete



stocks of heating, airconditioning, and refrigeration equipment and supplies for service dealers and contractors. Reid, with Marshall since 1949, formerly was a sales representative in the Toronto office.

### SPRING MEETING SET

Region 8 of ARW has scheduled its spring meeting at the Western Hills Lodge near Waggoner, Okla. The meeting is set for June 9 through the 12th. Members of Region 7 and manufacturers have been invited to attend.

### GENERAL CONTROLS CO. COMPLETES 30 YEARS

Completion of 30 years of business is being celebrated this year by General Controls Co. The company was founded in an Oakland, Calif., loft by the four Ray Brothers on \$10,000 borrowed from their father.

From first-year sales of \$2000, proceeds in 1940 exceeded \$1 million. Today, sales total \$40 million.

### MEET MRS. UNSELD



It's not often that woman is elected to an important post in a business dominated by men. But an all-male membership of Region 5, Air-Conditioning & Refrigeration Wholesalers saw fit to elect Ila H. Unsel chairman.

Mrs. Unsel started her career in refrigeration and airconditioning working for her father when he formed B. F. Harris & Son, Holland, Mich. She moved with the company to Grand Rapids, and became very active in counter and sales work. Later, she moved to Kalamazoo to become manager of the company's first branch store. It was during this stay in Kalamazoo that Mrs. Unsel organized the Southwestern Michigan chapter of Refrigeration Service Engineers Society.

Upon her father's retirement she became president and general manager of Harris Supply Co. A consolidation with a heating wholesaler changed the company name to Heating & Cooling Wholesalers, Inc. Mrs. Unsel is presently serving as vice president and director of purchases of this company.

Mrs. Unsel is also a member and past officer of Western Michigan section of American Society of Heating, Refrigerating & Air-Conditioning Engineers.

Notice anything missing from this profile? Specific dates . . . It's a woman's world!





## Ever hear of a bashful air-cooled condenser?

*Check the new Halstead & Mitchell  
vertical air flow condenser*

H&M's new ACV Air-Cooled Condenser with vertical air flow hates to be showy. It's so low and so quiet, you hardly know it's there—very appealing to owners, their neighbors, architects and engineers!

Roof loading is low, too, and air flow noise is directed away from surrounding structures. This delights building owners and tenants alike.

Vertical air flow models are available in 5 to 100 tons. And like all H&M Air-Cooled Condensers, the ACV series features exclusive Turbu-Flo fins, spaced wide to prevent clogging by air-borne dirt. Multiple circuiting is available for your specific needs *at no extra cost*.

Get the whole story on H&M Air-Cooled Condensers—with propeller or centrifugal fan. Ask your refrigeration wholesaler for a copy of the new bulletin AC-102. Or write to Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.



Air-Cooled Condensers • Finned Coil Products • Water-Cooled Condensers • Cooling Towers

Circle No. 42 on Reader Service Card

# Contractors

## Consulting Engineers and Contractors Aim

### For Common Goal - Profitable Business

A TOLERANT UNDERSTANDING of the other person's problems was pointed out by Ralph M. Westcott, national president, Consulting Engineers Council, as a basic step between contractors and consulting engineers who would work together for the common objective of operating a more profitable business.

Speaking before the annual convention of Refrigeration & Air Conditioning Contractors Association, Westcott said, "Profit is an essential ingredient of business success. We all must evaluate every phase of our business for its profit or loss potential."

Westcott cited three general groups of responsibilities and standards of professional performance to which the consulting engineers must conform to be successful.

"The first qualification," Westcott continued, "relates to the engineer's technical competence, judgment and experience. In the eyes of the public, these are almost solely the reason for the consulting engineer's existence."

"The second group of responsibilities covers our business and contractual relationships within our own firm, with our clients, and with all of the suppliers and contractors. In this category we are responsible for managing our business affairs, which includes the establishment of fees and methods of operation."

#### **Stresses Importance of Ethics**

"The third category of responsibilities concerns the professional and ethical considerations of consulting engineering. We are committed to render independent judgment and utilize our technical experience in the best interests of our clients. This pre-

cludes our having commercial affiliations or alliances through which we might profit. For these services we receive a fee, and are expected to have a full understanding of all the objectives that the project demands. We believe that consulting engineers can obtain this information more completely and objectively than manufacturers or contractors."

#### **Key Factor Is Relationship**

The relationship between contractors, manufacturers and consulting engineers was pointed out by Westcott as an important factor. He explained that a feeling of fundamental cooperation between all three could provide the best climate for the clients and customers.

"When a consulting engineer designs a project," Westcott continued, "He is paid for it by the client, and he is responsible for the design. The cost of design engineering is eliminated from the operating cost of the contractors, and each competing contractor is presumably bidding on the same data."

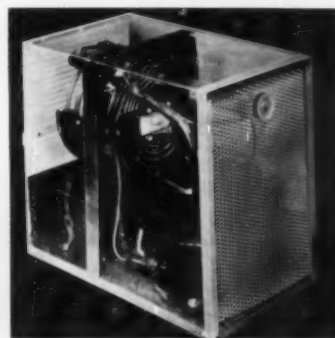
"Any plans and specifications prepared by the consulting engineer should be complete. There should be a minimum of changes necessary and there should be a minimum of doubt in the minds of contractors as to what is expected of them and how the project is to be completed."

"We need your help," Westcott concluded, "with constructive criticisms when you feel that you have a better method to offer on techniques or the use of equipment and components. The consulting engineer should listen with an open mind to these comments and criticisms."

## **AIRTEMP '60 PROMOTION OFFERS NEW "DART"**

A new Dodge "Dart" is being offered as part of the 1960 Airtemp Div. promotion campaign. After a dealer places his required room airconditioner unit order, he contacts his Airtemp distributor, pays only \$1, orders the kind of Dart car he wants, and waits for delivery.

Other sales promotion plans for Airtemp dealers include a 2-unit room airconditioner display stand; new clock for retailer's name identification; 4-color product folders and specification sheets; the Profit Planner, a tabloid publication giving dealers sales suggestions, and a complete profit kit.



**WHAT HAPPENS** when a dehumidifier removes moisture from the air can be seen through the plastic cabinet on an experimental display model developed by Gibson Refrigerator Co. Customers can actually see moisture condense on the evaporator coils and drop into the plastic container. Sales floor tests show that the display can increase sales nearly 20%.

## **MARDER NAMED RACCA OF N.J. PRESIDENT**

Saul Marder has been re-elected president of Refrigeration and Air Conditioning Contractors Association of New Jersey for a second year. Other state officers include Ray L. Egger, Jr., vice president; Chester J. Karas, secretary-treasurer; William J. Capo, sergeant-at-arms; J. Lloyd Handy, executive secretary; Edgar A. Donohue, legal counsel.

New directors are Ingvar Monsen, Edward Kessler, John S. Sanok, William J. Capo, Daniel De Sesa, Erwin Geiger,

*Continued on page 81*

*X Marks the Spot for X-tra Profits\$...*



*When  
You're  
Servicing,  
don't  
forget...*

**CHECK the  
condition of  
storage shelving**

**and SELL**  
**RUGGED...**  
**EASY-TO-CLEAN**

**MARK-2**  
**SHELVING**

**M  
F  
CO.**

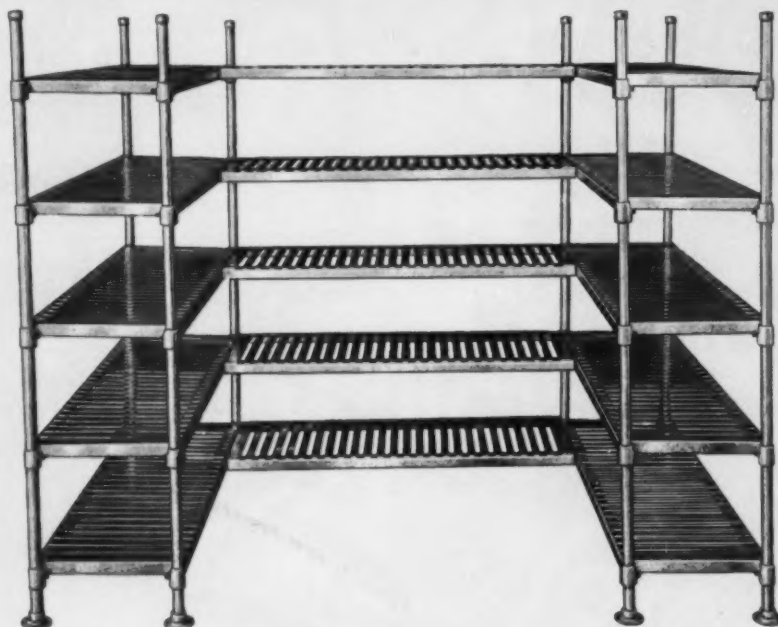
**MARKET FORGE CO.**

**Everett 49, Mass. Est. 1897**



**Replace  
worn out,  
unsanitary  
shelving  
with rugged  
MARKET FORGE**

# MARK-2 SHELVING



> **Custom-Made** . . . Send us the dimensions of the box. You don't have to do any figuring or estimating. We'll do it for you!

> **Easy-To-Install** . . . Shipped knocked down with each shelf marked and with a plan drawing of the box showing location of shelves. All you need is a hammer!

> **Custom-Fitted** . . . Shelf lengths in increments of 2", from 2'6" to 7'6". Shelf widths in increments of 2", from 12" to 2'6". No wasted storage space!

> **Sanitary** . . . Easy-to-clean, heavy duty construction — lasts a lifetime! All posts have stainless steel top caps and feet . . . minimum of crevices and joints. Small containers easily stored on the sanitary no-tip surface without falling or spilling.

> **Versatile** . . . Shelves are removable and adjustable . . . easily adjust into infinite vertical arrangements. Additional shelves can be added any time. Shelving units can be used singly, as multiple section shelf racks, or in corner layouts.

**SEND THIS COUPON TODAY...**

**MARKET FORGE CO.** Storage Rack Division  
Everett 49, Mass.

5 R&CB

CATALOG ☐ PRICES ☐ HAVE SALESMAN CALL ☐

NAME ..... TITLE .....

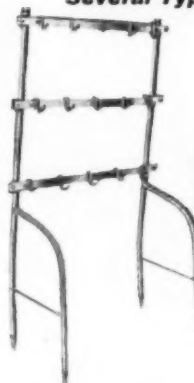
FIRM .....

STREET .....

CITY & STATE .....

## MEAT HOOK RACKS

**Several Types Available:**



- Self-Supporting.
- Single Post to Ceiling.
- Wall-Mounted.

## MOBILE SHELVING:



- Standard Sizes Available.
- Stainless Steel or Galvanized.
- Life-Time Construction.

**M  
F  
CO**

**MARKET FORGE CO.**  
EVERETT 49, MASS.

The Mark of EXCELLENCE in Storage Shelving

Made in U.S.A. Printed in U.S.A.

Form No. A60-30



Charles Edmond, Anthony J. Dietl and James M. Naughton.

The new officers and directors were installed at the group's 12th annual installation dinner.

### **BROWN IS PRESIDENT OF CHICAGO RACCA**

Daniel M. Brown, vice president, Systems Engineering Corp., Chicago, Ill., was elected president of the Refrigeration and Air Conditioning Contractors Association of Chicago at the group's annual meeting.

Other officers are: Harvey O. Miller, Murphy & Miller, Inc., vice president; Oliver P. Crose, Crose Co., secretary-treasurer. Directors re-elected were Albert M. Belanger, Chicago Climate Control Co.; L. E. Hermen, All-Temp, Inc.; Herman Steinborn, Lake Shore Refrigeration Sales and Service.

Carried over on the board from last year are: Robert Campbell, Wilt Climate Control Co., and Albert G. Weil, RMC, Inc.

Three new directors elected include: Edmund Gelfand, Crown Temperature Engineers, Inc.; Walter McCarty, McCarty Bros. Equipment Corp., and Louis H. Streb, Chicago Conditionaire Co.

Guido F. Restagno, president of Resco Refrigeration Service, Inc., who has served as the association's president for the past two years, has moved into the position of advisor to the board of directors.

### **RACCA '60 CONVENTION SCHEDULED FOR MIAMI**

Refrigeration & Air Conditioning Contractors Association will hold its 1960 national convention Nov. 20-23 at Hotel Fontainebleau, Miami Beach, Fla., according to president Tom Alexander. Convention dates were selected to coincide with the annual meeting of Air-Conditioning & Refrigeration Institute at Hollywood Beach.

Dudley Cawthon has been named chairman of the convention committee, assisted by Robert Lafferty. One more member remains to be named.

### **BID DEPOSITORY USED BY CENTRAL OHIO MCA**

A major feature of the Mechanical Contractors Association of Central Ohio is the use of the bid depository. This, according to association official Bob Golden, forces opening of bids for private jobs in public.

One copy of each bid for a private job is sent to a Columbus bank, the other to the general contractor involved. When bids are opened, the contractor must

accept the low man or give written reasons why he does not.

In addition, association members report on all bids no matter how transacted.

The association, which opened its Columbus, Ohio, offices in September 1958, is composed of refrigeration, airconditioning, plumbing, heating, piping, ventilating, and sheet metal trades.

**YOUR WHOLESALER  
CAN SERVE YOU — LET HIM!**

## **control noise and vibration**



*...install units  
on*  
**ISOMODE® PADS**

• It's easy to avoid complaints due to annoying vibration and noise. When installing air conditioning units, simply set them on ISOMODE PADS. Just cut what you need for the weight of the unit, place the Pads under each corner and that's it. ISOMODE PADS swallow up vibration, muffle noise on any type floor.

Made of Neoprene, these cross-ribbed, 5/16"-thick pads cut with ordinary shears, need no cementing, resist oils and water, last for years. One standard economy package of ten 18" x 18" ISOMODE PADS gives you enough for mounting 160,000 pounds of equipment. Write for prices and detailed Bulletin No. 415.

### **MB ELECTRONICS**

A DIVISION OF TEXTRON INC. 1065 State Street, New Haven 11, Conn.

# WHAT 7 THINGS HAPPENED RECENTLY AT FRICK COMPANY\* IN WAYNESBORO, PENNA. ?

## 7 important things for ... and you:

1. First of all, on a foundation of our 107 years' experience, our new management has established a growth policy that stresses new product development, quality control, and expansion of field services.
2. New branch offices are being opened and the sales-engineering staffs of existing branches as well as of the home office are being increased.
3. A compressor of new design is being developed. This, like our current dependable line, will handle a variety of refrigerants such as Freon, ammonia, propane, butane and carbon dioxide.

4. A new circulating system using refrigerated sea water has been introduced to commercial fishing fleets, at a saving to boat owners.

5. Completely insulated Shell-Ice makers have been "packaged" for convenient field installation.

6. Service to the growing poultry industry has been highlighted by our new counter-flow-continuous poultry chiller, which uses refrigerated water instead of ice.

7. As part of the growth policy, we are increasing the number of Frick distributors. Some of our distributors have been with us 50 years.

*All of which indicates one thing: Frick is "on the move!" If you're passing through Waynesboro this summer, stop in and see for yourself; you'll be able to enjoy our remodeled and air conditioned offices.*

## FRICK COMPANY

Waynesboro, Penna.

\*Pioneers in dependability since 1853: air conditioning, refrigerating, ice making and quick freezing equipment, power farming machinery and portable sawmills.

## USEFUL Literature

**BASIC CONSIDERATIONS** for proper controller selection is but one of the many features offered readers of a 54-page booklet (ED-93) published by Cutler-Hammer Inc. Fully illustrated, the booklet provides a descriptive interpretation of basic controller selection considerations, the available types of reduced voltage and high voltage controllers, their individual operational and performance characteristics and construction and design features. Also includes sections devoted to auxiliary starting equipment, individual controller ratings and the writing of specifications.

Circle No. 121 on Reader Service Card

**THE RIGHT FORMULA** for selecting evaporative water coolers is given in a new bulletin (PFCF, 531.08) published by Drayer-Hanson Div., National-U.S. Radiator Corp. Includes general specifications of the company's "Perma-Fan" evaporative water coolers. Also lists several comparative charts, and dimensional drawings.

Circle No. 122 on Reader Service Card

**LEAK TESTING** of tanks, piping and other enclosures is discussed in a bulletin (GET-2936) published by General Electric Co. Lists detailed instructions on use of halogen leak detectors for finding leaks in enclosures that can be pressurized. Also gives steps of system preparation, testing procedures, quantitative measurement techniques, calibration.

Circle No. 123 on Reader Service Card

**PLENTY OF COLOR** is used to illustrate room airconditioners in a new folder (OCR-44) published by Coolerator Div., McGraw-Edison Co. Includes sales features of styling as well as mechanical features. Also lists specifications.

Circle No. 124 on Reader Service Card

**DUST COLLECTORS** are described in a 16-page bulletin (1828) prepared by American-Standard. Includes a list of typical industry applications, and presentations designed to simplify engineering calculations relating to dust collectors. An example problem is used as a guide to selection and efficiency determination procedures. Illustrations include assembly arrangements and engineering line drawings.

Circle No. 125 on Reader Service Card

**SOLVING PROBLEMS** in process industries is the subject of a new bulletin (102.2) published by Hynes Electric Heating Co. Describes how liquid heat transfer units for heating jacketed equipment of all types can be used to advantage in process industries. Includes illustrated examples of engineer application of packaged heating units. Also includes diagrams and specifications.

Circle No. 126 on Reader Service Card

**A COMPLETE LISTING** of recommended outdoor design temperatures for southern California, Arizona, and Nevada has been prepared by the Southern California Chapter of ASHRAE. The new edition includes about 50 new localities, and corrected design web bulb temperatures which are believed to be both realistic and consistent. Copies are \$1 each, and may be obtained by sending remittance to Chapter Treasurer, B. Lee Hutchinson, 6824 Vineland Ave., North Hollywood, Calif.

Circle No. 127 on Reader Service Card

(More Useful Literature on page 84)



Mr.  
Serviceman:

NOW... FINISH YOUR SEALING  
AND CAULKING JOBS FASTER,  
BETTER, MORE ECONOMICALLY  
THAN EVER BEFORE!

use

### Mortite Caulking Cord Mortite Caulking Gum

sturdily packaged in  
handy "tool-kit" size



Lower cost Mortite White Caulking Cord contains three 16-foot rolls, fits any tool kit;  $\frac{3}{16}$ " rope-like cords stay permanently pliable.

Lower cost Mortite White Caulking Gum hand molds into beads, wads, gaskets... any shape. Comes in solid one pound slug.

These two sealers, designed by refrigeration servicemen, are perfect for 1001 different jobs:

- Sealing windows, extension wings and openings around window air conditioners
- Sealing breaker strips and joints in air ducts
- Sealing latch and hinge plates, tube entries and cabinet bases

Mail coupon for full information

**JW Mortell**  
COMPANY

Makers of Famous NoDrip Tape and Mortite

J. W. Mortell Co.  
553 Burch St., Kankakee, Ill.

O.K. I Send me full information about the complete line of Mortell refrigeration products.

I'm a ☐ Jobber ☐ Dealer ☐ Serviceman

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ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle No. 46 on Reader Service Card

# NOW cut tight curves with line-hugging accuracy



## 16 ga. Metal Cutting Electric SHEAR

**Cuts up to 17 ga. MONEL and STAINLESS**

Here's the fast way to slash sheet-metal cutting costs. The new Model 200 MILWAUKEE Shear cuts any shape faster, easier, and with far more accuracy than was ever before possible.

With new advanced blade design, tight right- or left-radius cuts can be made smoothly, easily, and without jamming. The new blade slices easily through even Monel and up to 17 gauge stainless steel... without fouling or forcing. Cut metal is kept from curling by the built-in, full-length deflector plate.

Work edges are smoothly finished right along the cutting line, without further trimming or deburring. A quick twist of the adjusting screw positions the blade for cutting any sheet metal thickness up to 16 gauge... even heavier in trim cuts and aluminum.

See this completely new shear at your nearest MILWAUKEE Distributor, or write for bulletin SH-1.

### MILWAUKEE ELECTRIC TOOL CORPORATION

6310 WEST STATE STREET  
MILWAUKEE, WISCONSIN



Circle No. 47 on Reader Service Card

## USEFUL LITERATURE

*Continued from page 83*

**A HANDY COLOR INDEX** makes quick and easy use of Catalog 60-2 by Brabant Brass Mfg. Co. Shown throughout the 16 pages are hundreds of tube and pipe fittings, with related accessories. Each of 16 product groupings includes photos and complete specifications. Easy-to-use cards are attached for quick ordering.

Circle No. 128 on Reader Service Card

**EXPERIENCE AND SERVICE** are offered readers of Bulletin No. 500, published by Frick Co. Describes the company's line of air cooling units and shows various application photos. Drawings clearly show all dimensions for the units as well as accessories.

Circle No. 129 on Reader Service Card

**EXCLUSIVE FEATURES** of radial compressors are listed in a 40-page Radial Data ME-120 Book published by Airtemp Div., Chrysler Corp. Includes capacity ratings, schematics, condenser data and roughing-in dimensions.

Circle No. 130 on Reader Service Card

**PROPER SELECTION** of water heating and cooling coils is just one feature contained in Catalog 5559 published by Young Radiator Co. The 27-page book includes water, direct expansion and booster coil specifications, and exclusive construction features. Also gives complete physical and dimensional data charts, piping diagrams and architectural and engineering specifications.

Circle No. 131 on Reader Service Card

**A PNEUMATICALLY ACTIVATED** high velocity valve attenuator is described in Bulletin K-45, issued by Connor Engineering Corp. The booklet lists features, explains the unit's function, and shows its advantage over motorized valves. Complete performance data is included, along with dimensions and specifications.

Circle No. 132 on Reader Service Card

**SINGLE STORY** commercial and industrial buildings are the main subject of a brochure released by Ventil-Aire Corp. Describes the company's packaged roof mount airconditioning and heating units. Lists full information on the installation, operation and maintenance of the systems. Also gives several installation photos.

Circle No. 133 on Reader Service Card

**AIR-CIRCUIT DIAGRAMS** help describe the "KCD" industrial instrument air dryer in a two-color bulletin published by Kohlenberger Engineering Corp. This literature includes specifications, dimensional drawings, and typical refrigeration and air-circuit diagrams.

Circle No. 134 on Reader Service Card

**THE AUTOMATIC CONTROL VOLUME** features of the dual-duct air mixing unit are described in a 2-color catalog issued by Buensod-Stacey, Inc. Bulletin DD-6 contains detailed performance data, specifications, dimensions, and arrangements of dual-duct systems for many types of buildings and zoning arrangements. Literature has 16 pages.

Circle No. 135 on Reader Service Card

**FACT FILE** is the title given a folder prepared by J. F. Pritchard & Co. Includes complete description and specifications of the company's line of cooling tower design, capacity tables and suggested specifications.

Circle No. 136 on Reader Service Card



**COMPLETE OUTFITS** for gas welding and cutting are described in a 36-page catalog (ADC 702E) published by Air Reduction Sales Co., a Div. of Air Reduction Co., Inc. Lists the company's complete group of gas welding and cutting hand torches, outfits, tips and accessories. Covered in detail with descriptions, features, specifications and photographs.

Circle No. 137 on Reader Service Card

**NEW FROM TRUCO** is the title of a new folder on diamond drilling machines, diamond drill bits and accessories, concrete, masonry and stone saws and diamond blades. Descriptions and specifications are given for a complete line of drilling and sawing tools and hints on how to reduce drilling costs. Prepared by Truco Masory Drilling Div., Wheel Trueing Tool Co.

Circle No. 138 on Reader Service Card

**MANY ITEMS** for the refrigeration and airconditioning industry are cataloged in Booklet R-59 published by McIntire Co. Includes descriptions on driers, filters, strainers, liquid indicators, water regulating valves, water bubblers, hoses, clamps, clips, straps, and hangers.

Circle No. 139 on Reader Service Card

**MAKING AIR BEHAVE** is the subject of a new condensed catalog (F-4471-6) prepared by Barber-Colman Co. Includes data and pictures of the company's line of air distribution equipment including sidewall, ceiling and floor diffusers, high velocity equipment and accessories.

Circle No. 140 on Reader Service Card

**DOLLARS OUT OF THE AIR** is the title of a new 16-page brochure (K-160) published by Kathabar Air Conditioning and Drying Systems, Surface Combustion Div. of Midland-Ross Corp. Describes the latest models of equipment used to stop condensation; speed drying and other processing operations; obtain subfreezing dewpoints; make air sterile to hospital standards. Also describes prefabricated standard test rooms.

Circle No. 141 on Reader Service Card

**PLENTY OF IDEAS** where ice cubers and ice chippers can be used are given in a bulletin prepared by Kodiak Industries Co. Descriptions include sales features and color photos. Also lists capacities and specifications.

Circle No. 142 on Reader Service Card

**A SPECIAL FEATURE** in a new catalog published by Niagara Blower Co., is a table from which selection of a correctly sized condenser can be made for Ammonia refrigeration in 46 sizes from 12 to 425 tons, at standard conditions. The booklet describes evaporative condensers applicable to refrigeration and airconditioning installations from approximately 10 tons refrigeration upwards. Includes photographs of condensers, important features and diagrams showing construction and operation. Physical data includes general specifications, dimensions and weights.

Circle No. 143 on Reader Service Card

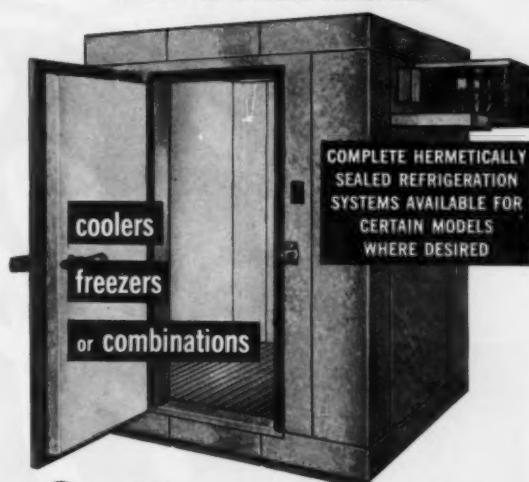
**HUNDREDS OF PIECES** of moisture-detection, control, and alarm equipment are described in a 69-page Catalog No. 660 published by American Instrument Co. Complete systems are described, as well as individual components whereby specialized systems can be built.

Circle No. 144 on Reader Service Card

**FULL SPECIFICATION DATA** for new "SCD" sprayed coil humidity control units is given in a leaflet issued by Drayer-Hanson Co. Div. of Crane Co. Included is a cutaway product photo and dimensional drawings that are keyed to a table of dimensions.

Circle No. 145 on Reader Service Card

Circle No. 48 on Reader Service Card



## Bally walk-ins

Aluminum or steel sectional construction

Sanitary! Strong! Efficient! You can assemble any size Cooler, Freezer or Combination, in any shape, from standard sections.

**REFRIGERATION CONTRACTORS:** Special franchise available with big sales possibilities to everyone who sells or serves food, including clubs, schools, churches and farms. No need to maintain inventory. Sell from catalogs. Factory Layout and Engineering Service available at no cost.

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Get details — write Dept. RAC-5 for FREE book.

**a drink dispenser  
PRICED to fit  
every  
application**

NOW you can have a proven top quality drink dispenser at a price to meet budget installations. The new Everfrost Model SBX Soda Bar provides three fast-acting carbonated faucets, 3 two-gallon syrup tanks, all-dry refrigeration, extra large ice storage tank and completely self-contained operation. Write today for complete information on this new LOW price unit.

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General Electric Company, Air Conditioning Dept., Tyler, Tex.  
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MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS



## Defense Dept. Outlines Policy On Airconditioning Priorities

A GENERAL PRIORITY LIST established by the Office of the Secretary of Defense defines eight categories where airconditioning is considered of prime importance. This policy as it pertains to bases or fixed installations was outlined at the special Air-Conditioning and Refrigeration Industry conference session by Thomas R. Casberg, mechanical engineer in charge of airconditioning in the office of the Assistant Secretary of Defense for properties and installations.

"The policy was established," Casberg stated, "so that the limited funds would be applied to the most needed cases first. It was necessary to specify those areas where the lack of airconditioning will not seriously affect military operations. In areas where airconditioning is essential it was necessary to establish a priority system."

Here's the priority list:

1. Direct military operational facilities.
2. Hospitals and related medical or dental facilities.
3. Training facilities.
4. Technical and industrial facilities.
5. Indirect military operation facilities.
6. Administrative facilities.
7. Morale and recreational facilities.
8. Personnel living spaces.

Casberg explained that for the first seven categories airconditioning is permitted anywhere the 67 F w.b. temperature exceeds 1000 hours during the six warmest months of the year. For personnel living spaces the criteria is 2200 hours.

To differentiate between direct and indirect military operations Casberg listed as direct facilities such installations as aircraft traffic control rooms, flight control centers, pilot alert rooms in or near alert hangars and underground command posts. Indirect installations include electronic computing rooms, dining halls and communication facilities.

### Final Decision Rests With Base Commander

"This is not a strict priority system," Casberg explained. "It is expected that each base commander will exercise judgment in selecting projects, and facilities in the higher categories will be considered first."

"The selection of a 1000 hour line was influenced by the use of airconditioning in business and industry, by requirement studies, and by the availability of funds."

"Limitation of airconditioning in personnel living spaces has not had the concurrence of industry. In 1955 we noted that industry leaders were stating that only 2 to 3% of the homes of America were

*Continued on next page*

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EAST LAKE ROAD, ERIE, PENNSYLVANIA



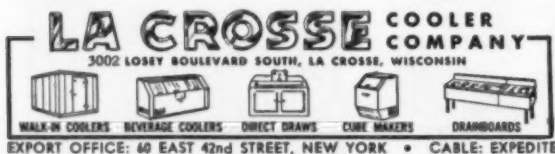
Circle No. 52 on Reader Service Card

## NEW LA CROSSE BOTTLE COOLER

UP TO 45% GREATER CAPACITY  
UP TO 45% GREATER CAPACITY  
UP TO 45% GREATER CAPACITY



Always the leader . . . and now the New La Crosse Bottle Cooler steps further in front with trim, modern design and greater capacity. The 6'6" model, with coil only, holds 40 cases . . . other models from 4'6" to 10'6" hold from 26 cases to 66 cases. Get more capacity for the money . . . specify La Crosse Bottle Coolers.



**Your Best Buy in Refrigeration Thermometers!**

**BACHARACH GOLD RIBBON Value!**

MERCURY FILLED  
40°F. to 120°F.  
RED SPIRIT FILLED  
50°F. to 120°F.

**SHOCK-RESISTANT**  
Has rubber shock absorber built into the case and a rubber top cap for the thermometer — providing exceptional resistance to mechanical shocks. Thoroughly annealed glass thermometer tube with tapered bulb withstands thermal shocks.

**FUNCTIONALLY STYLED**  
Case is ovalized; easy to hold, won't roll. Pincer clip has pincer grip which holds thermometer tight even on thin fabric. Push-in, pull-out rubber top cap holds tube in firm friction-grip, centers it safely in case.

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GR-32

Circle No. 53 on Reader Service Card

## DEFENSE DEPT. POLICY

*Continued from preceding page*

airconditioned. We could not justify spending taxpayer's funds for that which the taxpayer did not have himself.

"The dramatic increase in residential sales indicated a re-evaluation of policy was necessary. It pointed up a serious morale problem, and the revised policy was based on two points. First, the hottest areas would be conditioned first. Second, all personnel living quarters would be treated equally.

### Existing Buildings Also Get Cooling

"Airconditioning in existing structures is considered a modification or alteration," Casberg continued, "and funds for this work are obtained from a maintenance operation fund. In 1958 the military departments spent about \$20,000,000 for airconditioning in existing buildings. This included buildings in all of the eight priority categories. Because of this we set up the 'hottest area first' criterion, and we don't have to be concerned with the 2200 hour limitation for several years. Even if the entire amount was spent for airconditioning of quarters it would take eight years to reach the 2200 hour line.

"The use of the 67 F w.b. temperature was selected because it was a simple criterion which is easily understood. And this is important when dealing with laymen. Also it was not necessary to spend additional money necessary to compile new data.

"We do not issue a map because it would be misleading. A difference of 15 or 20 miles can often account for substantial differences in climate. We use only weather data compiled and issued by meteorologists, and on their advice, use a minimum record period of 5 years."

### Central System Selected as Most Practical

In outlining the types of systems most commonly used, Casberg said, "Through studies and data obtained from the industry we believe that only a central system is capable of quality airconditioning at the lowest costs consistent with long-term maintenance operational costs.

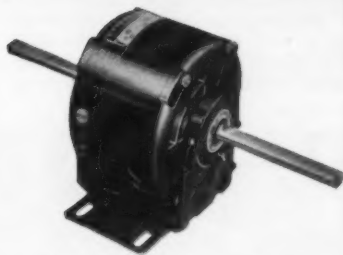
"We do however use room coolers and packaged units. Many houses with only one bedroom cooled utilize a room cooler. Small offices in non-conditioned areas such as warehouses use room coolers. And there are many small buildings where a single package unit, either direct expansion or chilled water, is the central system for the building.

"One thing we badly need," Casberg concluded, "is a strong representation to people in the industry who can correctly apply equipment. Not just individual pieces but the combination of all items which make up a system. A good system must be built up with properly matched components, properly applied.



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Circle No. 22 on Reader Service Card

## NEW Products

### Air Filters

**Product:** Line of electrostatic air filters.

**Manufacturer:** York Div., Borg-Warner Corp., York, Pa.

**Features:** Will trap between 98 and 99% of all visible dust, soot, pollens, fungus. Will filter out from  $\frac{1}{4}$  to  $\frac{3}{4}$  of invisible particles in the air. Can be installed in forced air ducts.



Requires no plumbing or drainage lines. Entire collector section can be removed for cleaning. Current automatically shuts off when the section is removed. Completely automatic. Operates whenever furnace blower is operating. Line consists of models in 115 volt capacities. Dimensions are 22 x 20 x 21", 22 x 24 x 26", 22 x 24 x 29". Larger size, which handles up to 2400 cu.ft. of air per minute, has about 14,000 sq.in. of collector plate area.

Circle No. 166 on Reader Service Card

### Diamond Bits

**Product:** Line of tubular thin wall diamond bits.

**Manufacturer:** J. K. Smith & Sons, Inc., Murray Hill, N.J.

**Features:** For boring through materials such as reinforced concrete. Made in standard diameters from  $1\frac{1}{4}$ " to 14", and in  $4\frac{1}{2}$ ", 12" and 18" core lengths. Adaptors are supplied without extra charge on bits in diameters up to and including  $6\frac{3}{4}$ ".

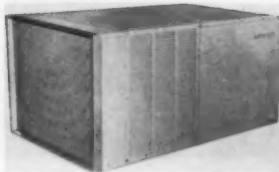
Circle No. 167 on Reader Service Card

### Packaged Airconditioner

**Product:** "Tuckaway" air cooled packaged airconditioner.

**Manufacturer:** Perfection Div., Hupp Corp., Cleveland, Ohio.

**Features:** Needs only to be plugged in, hooked up to the thermostat, and connected to the air distribution ducts. Big enough to cool a small commercial building, office or store. Available in 2, 3, and 5 hp models. Can be installed



in the attic, basement, crawl space, or outside the home on a concrete slab. Can also be mounted on a roof or through the transom over a door. All components housed in a heavy gage steel cabinet. Single heavy duty refrigerant cooled compressors operate on single-phase, 230 volt power. 5-hp unit also available for three phase power.

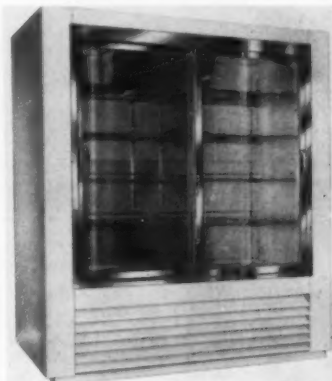
Circle No. 168 on Reader Service Card

### Refrigerator, Freezer

**Product:** 45-cu.ft. refrigerator and companion freezer. (Models R-45G, 45XHG).

**Manufacturer:** Nor-Lake, Inc., Hudson, Wis.

**Features:** Three-ply heavy-duty sliding glass doors. Freezer (45XHG) has automatic hot gas defrosting. Both units have eight adjustable wire



shelves to insure air flow around contents. Dimensions are 75 $\frac{1}{2}$ " high, 64" wide, and 33 $\frac{1}{2}$ " deep. Baked white enamel finishes. Stainless steel also available. Removable louvered panels are situated below the keyed locking doors.

Circle No. 169 on Reader Service Card

### Smoke Device

**Product:** Smoke generator.

**Manufacturer:** Superior Signal Co., Inc., South River, N.J.

**Features:** For detecting leaks in heating and airconditioning ductwork, boilers, tanks, compartments, refrigeration cars and similar enclosures. After the smoke generator is ignited, the smoke issues through any openings

that are present. Odor of escaping smoke gives further warning of leaks. After the test, ventilation quickly disperses and dissipates the smoke. No residue to stain clothing or the interior of buildings. Non-toxic, and will not corrode metals. Contains no explosives.

Circle No. 170 on Reader Service Card

### Pinch-Off Tool

**Product:** Pinch-off tool (No. 123-96).

**Manufacturer:** Robinair Mfg. Corp., Montpelier, Ohio.

**Features:** Assures positive pinch-off of all tubing to  $\frac{3}{4}$ " o.d. Can be used for closing off process tee accesses after recharging refrigerant systems.



Has screw-type action with ball-bearings. Screw turns with handle provided or refrigerant ratchet wrench to depress tubing into positive pinch-off without weakening, cutting, or perforating.

Circle No. 171 on Reader Service Card

### Low Pressure Pipe

**Product:** 180 amp welder.

**Manufacturer:** Lincoln Electric Co., Cleveland, Ohio.

**Features:** Suited for use on low pressure piping. Will operate on a 220 volt, single phase power supply. Designed for on the job welding. Dial type control for positive output current setting over a wide amperage range. Electrodes from the smallest to 3/16" diameter size can be used to weld materials from 20 gauge to  $\frac{1}{2}$ " or thicker. Variable voltage input adjustment is included to insure full output under all power supply conditions.

Circle No. 172 on Reader Service Card

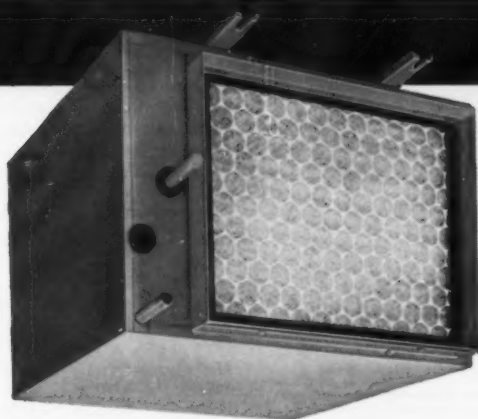
### Ice Vending Station

**Product:** Line of ice vending stations.

**Manufacturer:** Council Mfg. Co., Fort Smith, Ark.

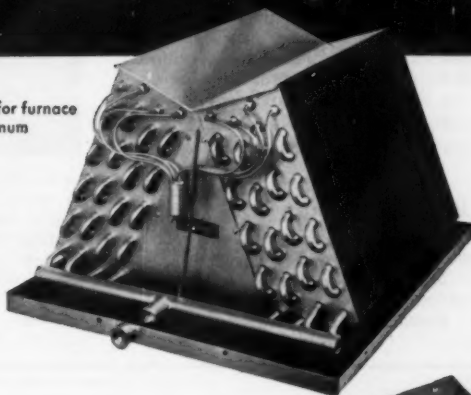
**Features:** Freezes, stores and dispenses bagged ice automatically. Ice making mechanism is available in multiples of 1400-lb. capacities per 24 hours. Balanced refrigeration system holds an average 24 F in the heavily insulated house. Five models available: 8' wide, 8' high and lengths





DAH for new systems in attic or crawl space

FP for furnace plenum



DAC for duct installation in hot air systems

**COMPACT — EASY TO SELL  
AND INSTALL**

# LARKIN

**AIR CONDITIONING  
COMPONENTS**

2, 3, 4 and 5-ton Capacities†

It's time to turn the sizzling home air-conditioning market into a piece of cool profit for yourself. One way to make that profit, and hold on to it, is to build custom systems with dependable LARKIN Air Conditioning Components.

Whether converting existing hot air systems, adding cooling to homes with wet heat, or installing year-round systems in new homes—it will pay you to use quality LARKIN products, priced to give you a competition advantage.

**A HOST OF STRONG FEATURES**

- Available in 2, 3, 4 and 5-ton capacities†
- Equipped with Larkin cross-fin coil, staggered copper tubing with aluminum fins  
UL approved
- Evaporator equipped with pressure-type distributor and external equalizer connection
- Insulated drain pan to prevent sweating
- Pre-punched holes for easy installation
- Cases of the DAH and DAC are fully insulated and finished in gray enamel
- The DAH is equipped with centrifugal fan, permanently lubricated motor and throw-away filters

**BASIC RATINGS**

Model	Capacity Btu/hr*	Cfm	Model	Capacity Btu/hr*	Cfm	Model	Capacity Btu/hr*	Cfm 0" SP
FP-2	25,600	800	DAC-2	25,100	800	DAH-2	24,800	950
FP-3	35,900	1200	DAC-3	37,300	1200	DAH-3	39,400	1375
FP-4	48,100	1600	DAC-4	48,960	1600	DAH-4	64,800	2180
FP-5	61,300	2000	DAC-5	61,200	2000			

†DAH is not available in 4-ton size

\*Capacity based on 80° DB 67° WB entering air, 40° F suction temperature, R-12 or R-22 refrigerant.



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OR WRITE FOR BULLETIN 1054-B**



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of 8, 12, 16, 20 and 24'. "Vendette" is coin operated remote vending chest for small-volume locations. Holds up to 60, 10-lb. bags at 24 F. Can be stocked from centrally located station. Both models offer automatic defrosting, and are mounted on sleds for mobility.

Circle No. 173 on Reader Service Card

### Baseboard Diffuser

**Product:** Thermostatically controlled baseboard diffuser.

**Manufacturer:** Control Systems Co., Milwaukee, Wis.

**Features:** Can be installed in new



or existing perimeter warm air heating or cooling systems. Diffuser unit consists of an automatic damper operated by noiseless thermostatically-controlled 24-volt electric motor. Diffuser is placed over the supply boot and fastened in position. An electric cord can be supplied for plug-in installa-

tions. Remote thermostat and transformer are connected to the diffuser with low voltage wiring. All other wiring is completely within the diffuser. By-pass dampers between warm air and return air plenums automatically balance duct pressures to assure constant volume. Diffuser measures 33" long, 3½" wide, 6½" high. Range of from 80 to 200 cfm adjustable by means of a volume damper.

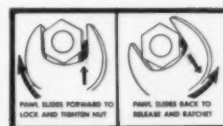
Circle No. 174 on Reader Service Card

### Ratchet Wrench

**Product:** Open-end wrench with ratchet action.

**Manufacturer:** Royal Tools, Inc., Hanover, Pa.

**Features:** Ratchet action is provided by spring-loaded pawl inserted



into one side of the open end. The shape of the pawl, and the way it is spring-loaded in its slot, permits the wrench to ratchet smoothly without removing the wrench from the nut. Available in five sizes: 7/16, 1/2, 9/16, 5/8 and 3/4".

Circle No. 175 on Reader Service Card

### Gasoline Torch

**Product:** Gasoline blow torch (Model T15A).

**Manufacturer:** Turner Corp., Sycamore, Ill.

**Features:** Burner is durable cast bronze, has a detachable cleaning



needle for automatic adjustment and orifice cleaning. Valve wheel is heat resistant and break resistant. Over-size cast drip cup provides quick generation. Burns any type of clean gasoline.

Circle No. 176 on Reader Service Card

### High Velocity Units

**Product:** High velocity airconditioning equipment.

**Manufacturer:** Drayer-Hanson Div., National-U.S. Radiator Corp., Los Angeles, Calif.

**Features:** For multi-storied applications. Line consists of 9 models from 3500 to 27,000 cfm., for DX,

# 1=72 \* with

## STRAIN-O-KAP SR. KIT

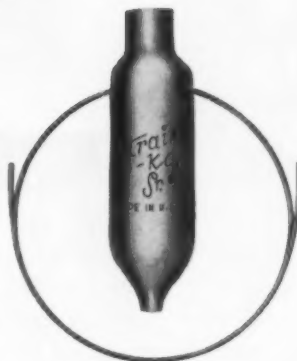
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1 STRAIN-O-KAP SR. KIT  
may be adapted to any one  
of 72 applications

*the newest idea in  
metering devices*

No special tools are required nor is the length of the capillary tube changed. Simply install according to instructions.

JUST ONE STRAIN-O-KAP SR. KIT CAN REPLACE ANY ORIGINAL CAPILLARY TUBE ON;

- Installations ranging from 1/3 H.P. to 1 H.P. inclusive
- Low, medium or high temperature systems
- Systems using refrigerants 12 or 22
- 1/4" 5/16" or 3/8" liquid lines

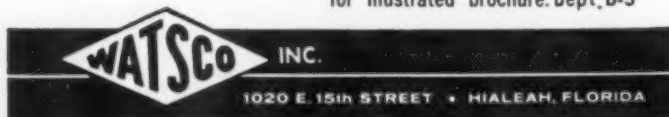


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### STRAINER

A 1 H.P. capacity triple mesh spun copper strainer progressively filters the refrigerant in a turbulent free flow. Designed with a 3/8" solder inlet, the strainer includes a reducing bushing which permits solder installations on 1/4" or 5/16" liquid lines as well.

For complete information send for illustrated brochure. Dept. B-5



Circle No. 56 on Reader Service Card



cold water, hot water and steam. For hot and cold duct operation, at static pressures from 2½ to 8", horizontal or vertical discharge. Three oversize access doors for ease of servicing. Doors on the pressure side open to inside of unit as extra safety factor. Panels are removable.

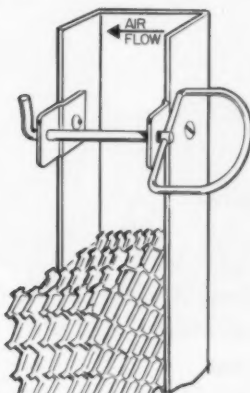
Circle No. 177 on Reader Service Card

#### Filter Handle Lock

**Product:** Ring type filter handle lock.

**Manufacturer:** Research Products Corp., Madison, Wis.

**Features:** Ring handle is convenient for lifting or carrying the filters. Filter is positioned in the holding frame, and the ring handle turned to



lock the filter in place. Ring handle lies flat with no portion protruding beyond the filter edge. Can be installed with only a screwdriver.

Circle No. 178 on Reader Service Card

#### Nut Splitter

**Product:** Swivel jaw nut splitter.

**Manufacturer:** H. K. Porter, Inc., Somerville, Mass.

**Features:** Designed to cut nuts up to and including 7/8" across flats.



Tool will not damage the bolt from which the nut is removed. Swivel blade can be turned with the fingertips to cut at any angle, even in tight quarters.

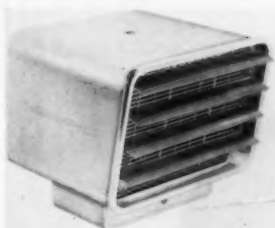
Circle No. 179 on Reader Service Card

#### Unit Heaters

**Product:** Line of electric unit heaters (UH-Series).

**Manufacturer:** Berko Electric Mfg. Corp., Queens Village, N.Y.

**Features:** Designed for use in offices, reception rooms and stores where design and decor are import-



ant. Factory wired, built-in 30-amp contactor eliminates the need for remote contacts. Thermal safety cut-out provides protection against overheating. All internal components including heating elements, contactor and thermal cutout can be removed

as a single unit for cleaning or servicing without disturbing the heater and external wiring. Available in 5 and 7.5 kw capacities, 208, 240, 480 volts. Can be wired for either single or three phase operation through buss bar connections.

Circle No. 180 on Reader Service Card

#### Adjustable Manometer

**Product:** Dual Range Manometer. (No. 1226).

**Manufacturer:** F. W. Dwyer Mfg. Co., Michigan City, Ind.

**Features:** Can be used either as a vertical U-tube manometer or as an inclined manometer in the measure-

## Read Superheat the MARSH way -

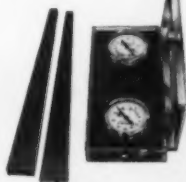


-It's the sure way—the easy way

### Serviceman

#### "Super-Heat" Kit

Contains two attractive, polished brass, 2½-inch thermometers, graduated -40° to +65° F. Also two insulating wrappers for easy bulb attachment and to insulate bulbs from ambient temperature (vital to testing accuracy). Thermometers, wrappers and manuals compactly held in durable 3" x 8" x 1½" box with handy hinged cover. Moderately priced thanks to efficient production.



Your setting of the expansion valve can be no more accurate than your reading of superheat. How do you read it?

The Marsh way is the accurate way... the lowest cost way, too, when you compare these long-lived thermometers with the breakable glass tube kind.

Instead of those hard-to-read, hard-to-use glass tube thermometers, a handsome pair of distant reading dial thermometers with small bulbs easy to attach at exactly the right place. Widely spaced markings in working area assure far greater reading accuracy than is possible with glass tube thermometers... guaranteed accurate within one division plus or minus.

Put the bulbs where they belong; the dials where they can be seen and compared... and you're "in business." Manual in every kit tells how to get best results. Write for facts or

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Division of Colorado Oil and Gas Corporation

Marsh Instrument & Valve Co., (Canada) Ltd., 8407 103rd St., Edmonton, Alberta, Houston Branch Plant, 1121 Rathwell St., Sect. 15, Houston, Texas.

# MARSH Refrigeration Instruments

Circle No. 57 on Reader Service Card

*the  
question  
is  
time*



During the past few years, the cancer cure rate has increased from one in four saved to one in three saved: 40,000 more lives saved each year. During the next few years, there will no doubt be new methods of diagnosis, and even cures for some cancers that are considered incurable today. In time, the ultimate goal, cancer prevention, will be achieved. But time alone will not do the job. ● Time plus research will. Research costs money. In the past 14 years, the American Cancer Society has spent about \$76,500,000 on cancer research. Much more is needed to accomplish the final conquest of this dread disease. Give generously. Send your contribution to "Cancer," in care of your local post office.

AMERICAN CANCER SOCIETY

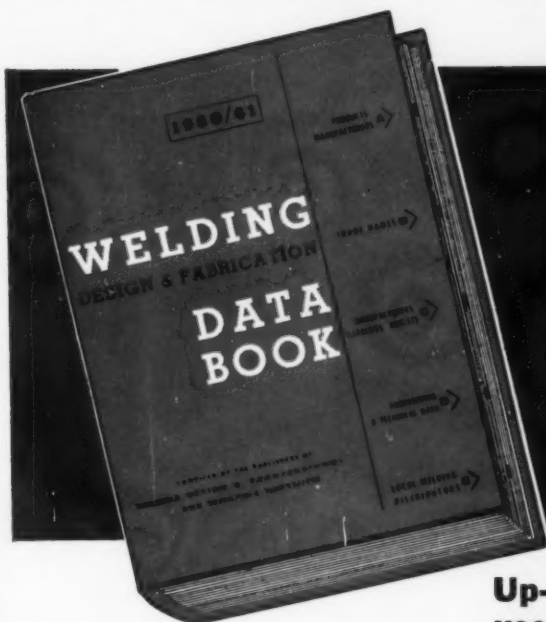
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*guard your  
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The 1960/61 WELDING DATA BOOK has over 800 pages of facts for buyers between its handsome cloth covers. You'll find more than 350 products listed, along with 1700 trade names and 2000 welding supply distributors. Special features include a 300-page technical and engineering data section and a section of manufacturers' catalogs and sales outlets.

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**Index To Manufacturers:** An alphabetic listing of welding, cutting and brazing equipment and supplies, accessories and auxiliary equipment. Manufacturers and their addresses are listed under each product.

**Trade Names:** An alphabetic listing of product trade names, the products they identify and the names and addresses of the manufacturers.

**Manufacturers' Catalogs And Sales Outlets:** Catalogs and advertising give information on welding equipment and accessories. An index to catalogs and advertisements lists the manufacturer's name and address of main plant, telephone number, names of key sales executives and names and locations of American and Canadian sales outlets.

**Technical And Engineering Data:** Three-hundred page section of technical and engineering data is divided into eight sections: It includes complete information on techniques and processes for welding and fabricating all metals.

**Where To Buy Locally:** An alphabetic listing by state, city and company tells where to buy welding equipment and accessories locally.

WELDING DESIGN & FABRICATION DATA BOOK  
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Welding Design & Fabrication  
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ment of low pressures. Special scale allows reading high range measurements on the other leg when gage is



inclined. As a U-tube manometer, pressures or pressure differentials are measured from 0 to 16" of water with minor scale divisions of .2" water. As an inclined gage, manometer reads from .20" to 0 to 2.60" of water with minor scale divisions of .02". Complete package includes tubing, carrying case and all accessories. Two flat type magnetic mounting clips hold the manometer to any steel surface.

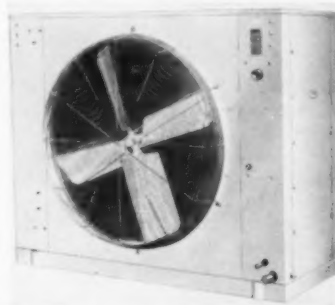
Circle No. 181 on Reader Service Card

### Condensing Unit

**Product:** Nominal 17-ton air cooled condensing unit.

**Manufacturer:** Lennox Industries Inc., Marshalltown, Iowa.

**Features:** Liquid refrigerant reaches the evaporator coil up to 20 F cooler than the condensing tempera-



ture to improve Btu per watt performance. Air movement is straight through the unit which is only 50" thick, including the fan guard. Air mover is 4' diameter Lennox "Power Prop". Cabinet is 64" high, 80-3/8" wide, and can be mounted on a slab at grade level or on a roof.

Circle No. 182 on Reader Service Card

### Electric Unit Heaters

**Product:** "Heetaires" line of heavy-duty electric fan-forced unit heaters (Series 600).

**Manufacturer:** Markel Electric Products, Inc., Buffalo, N.Y.

**Features:** For industrial commercial and retail establishments. Capacities range from 2 to 10 kw with 208, 240, 480 and 575 volt in single and three phase types. With either built-in or remote thermostat controls. Can be suspended from the ceiling or wall or used as portables. One or more thermal cutouts offer protection to both



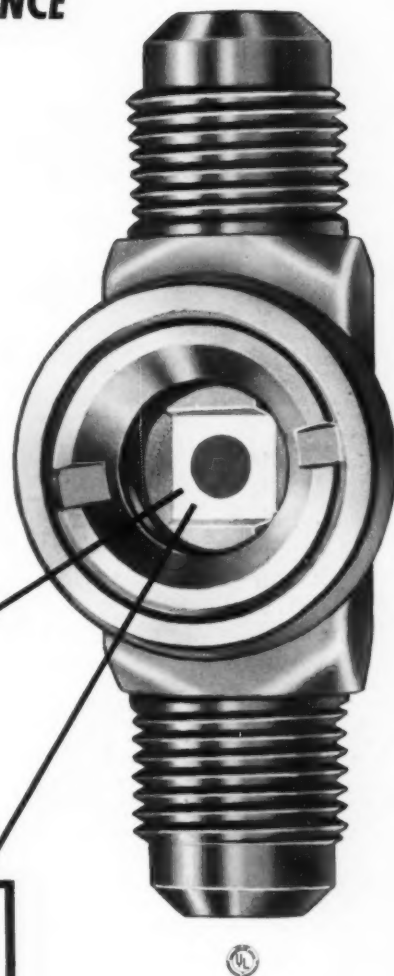
**CHECK REFRIGERANT CONDITION AT A GLANCE  
WITH A NEW DUAL PURPOSE  
MUELLER BRASS CO.**

***Vuemaster***<sup>®</sup>

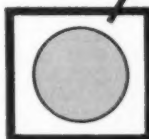
**LIQUID-MOISTURE INDICATOR**

This new indicator gives the same dependable, leak-proof performance that has made the Streamline single port liquid indicators famous, but has the added advantage of being a combination moisture and liquid indicator all in one compact unit. A color spot indicator in the new Vuemaster enables you to check refrigerant condition instantly. When the color spot is round and blue, the system is sufficiently charged and the refrigerant is in a normal, dry condition.

The spot changes to pink when excessive moisture is present. If refrigerant level drops, the spot loses its round shape. Vuemasters are fabricated of sturdy, pressure-tight forged brass, triple-sealed against seepage and individually packaged in sturdy, dust-proof containers. For complete specifications, write Mueller Brass Co. today.



Round blue spot shows the system is full and dry.



Round pink spot shows that moisture is present.\*

Color spot indicator loses its shape when refrigerant level drops.

\*When the color spot is pink it's time to install a Drymaster Filter-Drier... avoid freeze-ups, acid, sludge and corrosion problems.



A heavy duty, safety-seal brass cap keeps the sight port clean and protects the unit from dirt and damage. The cap is knurled for easy tightening and removal by hand.

**MUELLER BRASS CO. LIQUID INDICATORS  
TO FIT EVERY INSTALLATION REQUIREMENT  
AVAILABLE ONLY AT BETTER WHOLESALERS EVERYWHERE**

Mueller Brass Co. Liquid Indicators are available with flare or solder-type connections in a complete range of sizes in straight-through, single port with extended ends and double port models.



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DRYMASTER is the only Filter-Drier that gives you **GUARANTEED BALANCED PERFORMANCE** . . . matches drying capacity and filtering area to exactly meet the demands of every installation. The superb drying and filtering qualities are due to these outstanding design features:

DRYMASTER'S **HI-FI FILTER BLOCK DESICCANT** is a fully activated, pressure molded briquette. Effectively removes moisture from refrigerant lines as well as harmful acid, sludge and foreign particles.

DRYMASTER'S **CENTER FILTER TUDE**, over which is fitted a super-fine monel metal sleeve, is a combination that acts as a doubly effective safeguard against dirt and sludge; removes even micron-size foreign particles.

DRYMASTER'S **INLET DISTRIBUTION DISC** disperses refrigerant evenly throughout entire filter block desiccant. Combined area of openings in the perforated disc is carefully calculated to prevent pressure drop.

DRYMASTERS are available in 49 different sizes, with either male or female flare or solder-type end connections. Whichever style you use, you always get superb protection from acid, moisture and sludge . . . with Drymaster . . . the most perfectly balanced filter-drier you can buy.

**NEW REFILLABLE ANGLE-TYPE  
DRYMASTER FILTER-DRIER GIVES  
ADDED CONVENIENCE AND ECONOMY**



Once installed and loaded with **Hi-Fi Filter Block Desiccant Briquettes**, the new refillable, angle-type Drymaster Filter-Driers are in for the life of the system. Replacement of briquettes is fast and easy and you get new drier performance every time you re-charge. Available in 13 different sizes from 5 to 50 ton capacity.

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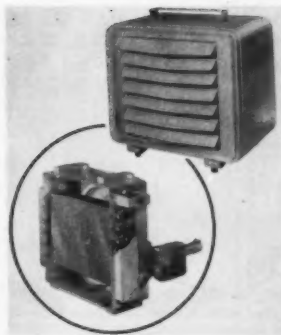


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Write today for latest Drymaster handbook.





motors and elements if air supply is cut off. Accessory thermostats, contactors and ceiling and wall mounting brackets offer complete selection for every application.

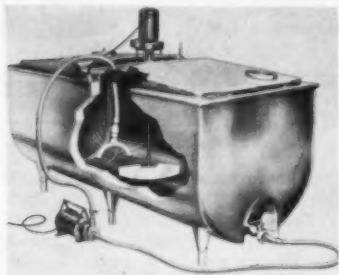
Circle No. 183 on Reader Service Card

#### Bulk Cooler Cleaner

**Product:** "Spin-Clean" in-place cleaner for bulk coolers.

**Manufacturer:** Sunset Equipment Co., St. Paul, Minn.

**Features:** Will work on all makes and sizes of coolers. Designed to



comply with state and city health department requirements. Circulating pump, hoses, and fittings are made of Nylon. Unit is powered by a 1/3 hp, 110 volt, 3450 rpm totally enclosed motor.

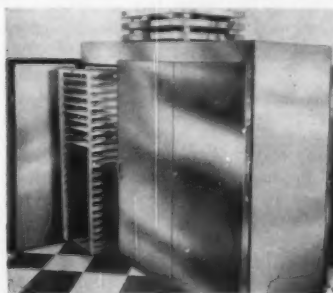
Circle No. 184 on Reader Service Card

#### Push-In Refrigerator

**Product:** Push-in refrigerator with hot and cold sections.

**Manufacturer:** C. Schmidt Co., Cincinnati, Ohio.

**Features:** Contains one or more cold and hot sections for food on racks. Has stainless steel inside and out with stainless steel insulated parti-



tion. Condensing unit for cooling sections can be top mounted or remote. Available in 2, 3, and 4 sections.

Circle No. 185 on Reader Service Card

#### Packaged Airconditioners

**Product:** "PAC" line of packaged airconditioners.

**Manufacturer:** Acme Industries, Inc., Jackson, Mich.

**Features:** Line includes five small models, in capacities of 25, 30, 40, 50 and 60 tons. Equipped with 10 and 15 hp compressors which, through a two-step thermostat, handle partial loads by cutting in or out. Also available as four-step units with two ther-

mostats. In both systems a small delay in timing allows succeeding compressor units to enter the phase in sequence.

Circle No. 186 on Reader Service Card

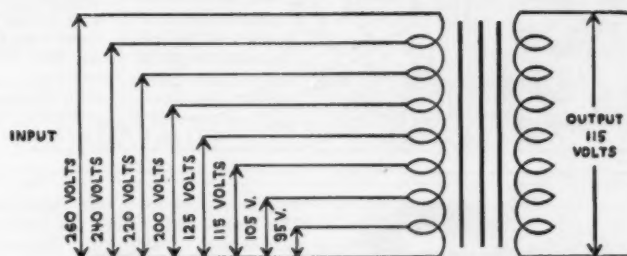
#### Punch Press

**Product:** "Porta-Press" portable electric punch press.

**Manufacturer:** Modern Mfg. Co., Willow Grove, Pa.

**Features:** Weighs only 15 lbs. Designed to punch out round, square, rectangular or any shape hole by changing punch and die. Can be used on stainless steel, brass, plastic and all other materials up to 1/8" ca-

## TAPPED WINDING TRANSFORMERS



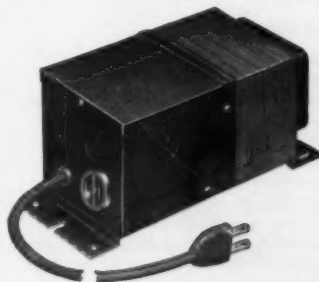
• Tapped winding transformers, solve both sales and installation problems, inexpensively. For example; where an air conditioner, refrigerator, or other appliance, powered by a 115 volt motor is to be installed in a location where only 230 volt power circuit is available, a tapped winding transformer plugs into the power circuit and supplies 115 volt service to the appliance.

Or, as another example; where the appliance installation is made in a location where supply voltage is below the normal required for good motor performance (105 volts or lower) then the input line connected to the proper taps can improve the low voltage condition and provide 115 volt service.

As shown in the diagram this transformer is designed with taps

for 260/240/220/200/125/115/105/95 volts primary connection and when connected to the proper primary taps will provide a 115 volt source of supply.

Available in ratings of 350, 550 and 750 VA. Other models provide 230 volt output from 208 volt available circuits. Write for Bulletin TW-320.



**ACME ELECTRIC CORPORATION**  
825 WATER STREET CUBA, NEW YORK

**Acme Electric**  
TRANSFORMERS

**DISTRIBUTOR DAN AND THE CASE OF THE H-6 LEAK DETECTOR**

**WHY THE CARRYING CASE AND MAINTENANCE KIT?**

EVERY THING NEEDED FOR ABOUT ONE YEAR'S OPERATION IS IN THE H-6 MAINTENANCE KIT IT INCLUDES...

ARE THERE MANY PARTS TO REPLACE IN THE H-6 LEAK DETECTOR?

AIR CONDITIONING & REFRIGERATION SERVICE

YOUR HALOGEN REFERENCE SOURCE TO ADJUST SENSITIVITY... AND A BOTTLE OF REPLACEMENT OIL, PLUS...

EXTRA FILTERS, ION SOURCES AND COLLECTOR, LAMPS, FUSES AND TUBES WITH ALL THESE IN YOUR KIT, YOU CAN SERVICE THE H-6 RIGHT ON THE JOB... WITH NO LOSS OF TIME...

...AND BEST OF ALL, YOUR MAINTENANCE KIT, INSTRUCTION BOOK AND LEAK DETECTOR ALL FIT RIGHT INTO THIS HANDY CARRYING CASE.

WHICH MAKES THE H-6 EASY TO CARRY. PROTECTS IT FROM DAMAGE.

WHAT'S MORE—YOU CAN USE THE H-6 WITHOUT REMOVING IT FROM THE CASE.

"FOR FAST SERVING AND BEST RESULTS WITH YOUR H-6 LEAK DETECTOR, YOU SHOULD HAVE BOTH THE MAINTENANCE KIT AND CARRYING CASE."

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capacity. It can also punch out holes in laminated or welded sheets not exceeding  $\frac{1}{8}$ " in thickness.

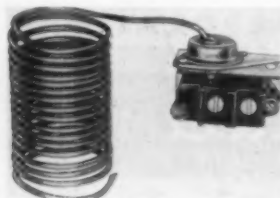
Circle No. 187 on Reader Service Card

### Limit Control

**Product:** Limit control for electric baseboards (Type 4A01).

**Manufacturer:** White-Rodgers Co. St. Louis, Mo.

**Features:** Designed to shut off the baseboard heating system if an unsafe temperature condition exists due to air passage being blocked at any point. For use with both high and low wattage baseboard heaters. When the bulb of the limit control reaches 210 F its contacts open, breaking the



circuit and shutting off the heater. The heater will remain off until the temperature inside the baseboard drops to normal, at which time the heater will come on. On-off cycling of the control will continue until the blockage is removed. Electrical rating: 22 amps at 120 or 240 volts, 18 amps at 277 volts. Available with sensing bulb lengths of 2, 3, 4, 5, 6, 8 and 10'. Shutoff temperature of 210 F is standard, with 220, 230 or 240 F available on special order.

Circle No. 188 on Reader Service Card

### Gas Furnace

**Product:** "Comfort-Aire" line of low-boy gas furnaces.

**Manufacturer:** Heat Controller, Inc., Jackson, Mich.

**Features:** Entire model line is AGA approved for use with natural, manufactured, and mixed gases. Offers from 80,000 to 195,000 Btuh input. All furnaces have sectional heat exchangers, cast iron slotted burners, and draft diverters. Combination controls, which are standard, supply 100% shutoff.

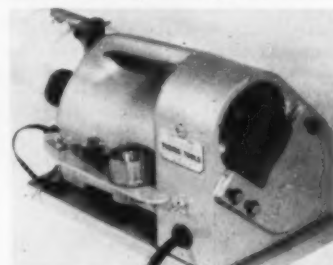
Circle No. 189 on Reader Service Card

### Deburring Machine

**Product:** "Toled-O-Matic No. 1 Buff-Ezy" cleaning and deburring machine for copper tubing and fittings.

**Manufacturer:** Toledo Pipe Threading Machine Co., Toledo, Ohio.

**Features:** Cleans and deburrs all tubing to 4", portable. A 4" main brush, with adjustable guide, handles



all external cleaning operations. Insures tight connections, prevents leaks, and reworking operations. Unit is fitted with handle and weighs only 52 lb. and is provided with heavy metal base plate for bench mounting. Machine is 10 x 10 x 17 $\frac{1}{2}$ " and equipped with 1/3 hp single-phase motor operating on 115 v., 60-cycle ac current.

Circle No. 190 on Reader Service Card

### Capacitor Tester

**Product:** "Cappy" electronic instrument for testing capacitors and condensers.

**Manufacturer:** Watsco, Inc., Hialeah, Fla.

**Features:** Will test capacitors and





condensers, both ac and dc, all voltages. Also can be used for testing fuses, line voltages, and motor windings. Compact and pocket size.

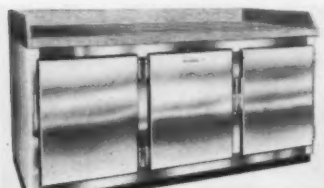
Circle No. 191 on Reader Service Card

### Refrigerator-Retarder

**Product:** Combination counter type salad refrigerator and bakery dough retarder.

**Manufacturer:** Silver Refrigeration Mfg. Corp., Brooklyn, N.Y.

**Features:** Available either remote or as a self-contained refrigerator.



Specifically designed for small restaurants, fast food operations, and drive-ins. Counter top, backboard and side boards are of 2" thick hard maple to withstand hard usage. Exterior is constructed of stainless steel and interior is available in satin-finished aluminum or stainless steel. Complete refrigerator is fully insulated with 3" of high density glass fiber to insure against heat leakage and prevent moisture from filtering in. Self contained models offer an automatic evaporation system, temperature control thermostat, and a capillary type refrigeration system which eliminates the need of constantly adjusting valve. Available in 6, 8 and 10" lengths. All in 115 volts.

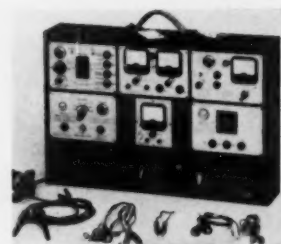
Circle No. 192 on Reader Service Card

### Compressor Tester

**Product:** Portable "8000" hermetic compressor analyzer and electrical tester.

**Manufacturer:** Airserco Mfg. Co., Pittsburgh, Pa.

**Features:** Designed for airconditioning and refrigeration. Provides manufacturers, wholesalers, engineers, and servicemen with an instrument and mechanical equipment for properly checking and testing compressors and their components. Tests this equipment up to and including 10 hp., 115, 208, 220, and 230 v., both single and three phase. Will test 3-phase



electrical components in 440 v. through 50 hp. Testing function includes starting, insulation, capacitors, ohmic readings including accurate dual voltmeter and ammeter. Also simulates accurate calometric readings of hermetic compressors. Portable, unit weighs only 30 lb.

Circle No. 193 on Reader Service Card

### High Side Kap Kit

**Product:** High side kit for capillary replacement assembly.

**Manufacturer:** Kenmore Machine Products, Lyons, N.Y.

**Features:** Contains moisture magnet drier, correct size capillary, and strainer. Drier has 100% molecular sieves of high-temperature, moisture-holding qualities, permitting use on



**DISTRIBUTOR DAN AND**

**THE CASE OF THE H-6 LEAK DETECTOR**

**R& SERVICE IN A FLASH**

WHAT HAPPENS IF I NEED SERVICE FOR MY H-6 LEAK DETECTOR?

WITH YOUR MAINTENANCE KIT YOU CAN ALMOST ALWAYS FIX THE H-6 YOURSELF. RIGHT ON THE SPOT. HERE ARE THE LITTLE THINGS THAT MOST OFTEN GO WRONG...

AIR CONDITIONING & REFRIGERATION SERVICE

FIRST, PLUG IT IN AND TURN IT ON. THE GREEN LIGHT SHOULD GLOW. IF NOT, CHECK PILOT LAMP AND FUSES.

NEXT, THE PROBE LAMP... TURN KNOB UP AND DOWN SCALE RAPIDLY... IF PROBE LAMP DOESN'T FLASH, REPLACE IT.

IF THE PROBE LAMP IS O.K. BUT STILL WON'T FLASH WHEN DETECTOR IS CHECKED WITH THE HALOGEN REFERENCE SOURCE THE ION SOURCE OR COLLECTOR MAY NEED REPLACEMENT.

FINALLY, IF THE H-6 STILL DOESN'T OPERATE PROPERLY, REPLACE PROBE FILTER AND TUBES... CHECKING OPERATION AFTER EACH IS REPLACED...

9 TIMES OUT OF 10, THIS EASY PROCEDURE WILL PUT YOUR H-6 BACK INTO TOP OPERATING CONDITION. IF IT DOESN'T, RETURN IT TO YOUR DISTRIBUTOR FOR SERVICE.

... AND REMEMBER, YOUR DISTRIBUTOR AND G-E STAND BEHIND THE H-6 AND ARE ALWAYS READY TO HELP YOU.

**SOLD!**

FOR MORE COMPLETE INFORMATION ON THE TYPE H-6 LEAK DETECTOR, CONTACT YOUR NEAREST AIR CONDITIONING AND REFRIGERATION WHOLESALE: OR SEND THIS COUPON TODAY FOR BULLETIN GEA-6827, TO GENERAL ELECTRIC COMPANY SECTION 595-414 SCHENECTADY 5, N.Y.

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refrigeration system high side. Drier handles 48½ drops of water under heaviest load conditions. Available in 4 sizes to meet requirements up to ½ hp.

Circle No. 194 on Reader Service Card

### Dial Thermostat

**Product:** "Diamond Jubilee Round" thermostat.

**Manufacturer:** Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

**Features:** Dial is 40% larger than viewing dials on earlier models, size



of indicating numerals has been increased by 20%. Set point scaleplate is located at the top of the thermostat, and the thermometer scale is at the bottom to facilitate dial reading. Plainly-marked "Comfort zone" allows homeowner to check performance of heating and airconditioning system. Silver-gray finish to blend with traditional or modern home decor. Decorator ring can be removed and painted to match any color scheme.

Circle No. 195 on Reader Service Card

### Odor Control Units

**Product:** "Sanitaire" odor control units.

**Manufacturer:** Atlantic Ultraviolet Co., Long Island City, N.Y.

**Features:** Provide odor control in areas from 6-room house to convention hall. Use newly-developed Westinghouse "Sterilamps". Available in three models. Adaptable for home installation, package airconditioning units, or commercial (more than 10 tons) airconditioning units. Commercial types equipped with variable control for ready adjustment to various size levels and odor levels.

Circle No. 196 on Reader Service Card

### Utility Bodies

**Product:** Utility bodies for 1960 Chevrolet and GMC ¾ ton chassis.

**Manufacturer:** Reading Body Works, Inc., Reading, Pa.

**Features:** Six inches longer than



last year's models. Front storage compartments have been increased in length and lowered. Measure 96" in over-all length to conform with increased cab-to-axle dimensions of these makes. Adjustable and removable dividers and removable shelves in the weather-tight storage compartments.

Circle No. 197 on Reader Service Card

### Duct Fans

**Product:** Three new sizes of fiberglass duct fans.

**Manufacturer:** Hartzell Propeller Fan Co., Piqua, Ohio.

**Features:** Now available in 12, 16, 20, 24, 28, and 36" diameters. Propeller, duct section, drive housing and bearing cover made of glass fiber; drive shaft and hardware are stainless steel. Offer same features as Hartzell belt-drive duct fans, including variable pitch drives which allow adjustment of fan speed, noise, and air delivery.

Circle No. 198 on Reader Service Card

### Welding Fittings

**Product:** Expanded line of welding fittings.

**Manufacturer:** Nibco Inc., Elkhart, Ind.

**Features:** Eccentric style reducers and increased size range of 45 and



90° elbows, straight and reducing tees and concentric reducers in a 2 through 6" range of sizes. Increases size range includes 1, 1¼, and 1½" size fittings.

Circle No. 199 on Reader Service Card

### Pipe Joint Sealer

**Product:** "Thred-Tape" pipe joint sealer.

**Manufacturer:** Crane Packing Co., Morton Grove, Ill.

**Features:** Offered in four widths, ¼, ½, ¾ and 1" permits selection of the size best suited to the joint to be sealed. Made of chemically-inert DuPont Teflon. Has proven effective for handling acids, caustics, corrosives, biologicals, toxics and gases. Withstands high pressure, temperatures from -250 to 500 F. Can be used on all types of piping. Tape is wrapped around the male threads. After connection has been made the tape fills all voids to provide a leak-



proof seal. Joints can be drawn up to maximum tightness. Tape remains permanently plastic, for ease of disassembly.

Circle No. 200 on Reader Service Card

### Soft Ice Cream Freezer

**Product:** "Arctic Zone" soft ice cream freezer.

**Manufacturer:** Freez King Corp., Chicago, Ill.

**Features:** "Arctic Zone" is special area of the freezer cylinder in which



the mix is aerated and semi-frozen. Two models are available with the arctic zone. Model 975-5 twin freezer has a 12 gallon per hour capacity and a 3 gallon mix reservoir on one side, and an 18 gallon per hour capacity and a 5 gallon reservoir on the other. Model 925-5 dispenses soft ice cream and is efficient as a shake dispenser, with maintained overrun.

Circle No. 201 on Reader Service Card

### Packaged Unit

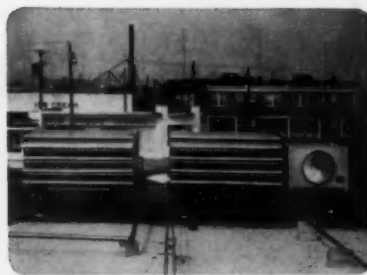
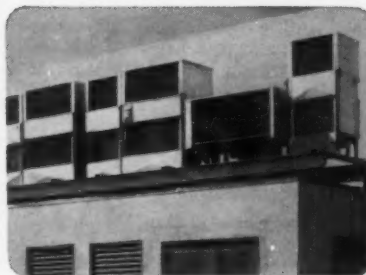
**Product:** Horizontal air-cooled packaged airconditioning unit (Model 1104-00).

**Manufacturer:** Airtemp, Div. of Chrysler Corp., Dayton, Ohio.

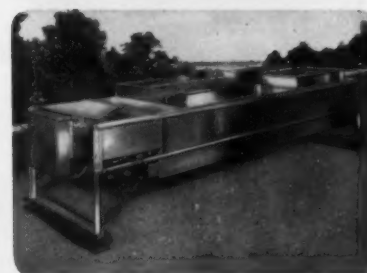
**Features:** Designed for homes, small apartments, and office buildings. For interior or outdoor installation. Can be placed in attics, crawl spaces, roof tops, or outside slab. Cabinet measures 45 15/16" wide x 39 7/8" deep, and 20 3/8" high. Small panel in shell allows field wiring and unit may be serviced at its location by removing side or top panels. Installation work minimized since this model can be separated by removing nine bolts, dividing blower

**throw your  
compressor  
out!\***

**\*outside that is!**



**STOP  
wasting  
costly  
building  
space!**



**USE KRAMER  
OUTDOOR CONDENSING UNITS**  
**FOR AIR CONDITIONING—COMMERCIAL, INDUSTRIAL & SUPERMARKET REFRIGERATION**

Kramer's Outdoor Condensing Units will operate outside without any additional protection or adjustment under all temperatures and weather conditions. They can be used for any application —air conditioning, commercial refrigeration, supermarket application, or industrial refrigeration.

Completely assembled, wired, tested and factory run-in, the units arrive on the job ready to operate. Simple hookup eliminates costly installation and control adjustment time. Kramer's Outdoor Condensing Units end waste of valuable indoor space.

**WRITE FOR BULLETIN**

**KRAMER TRENTON CO., Trenton 5, N. J.**

**47 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER**

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THE REFRIGERATION & AIRCONDITIONING BUSINESS/MAY 1960



**"O.K... BUT ISN'T  
ONE CHEMICAL  
CLEANER AS GOOD  
AS ANOTHER?"**



**NO!**

Not when tough cleaning problems can cause poor heat transfer... high head pressure... increased operating costs! Extra tough cleaning jobs call for extra strong Ultra Solvex Cleaner. This dry, granular chemical cleaner disintegrates scale in minutes. Eliminates scraping and reaming. No costly shut-down. Yet Ultra Solvex is safe for operator... safe for equipment. Costs slightly more... but isn't quality worth it? Insist on quality... insist on Ultra Solvex.

**CHEMICAL SOLVENT CO.**  
BIRMINGHAM, ALABAMA



**ASK  
YOUR  
WHOLESALE**

Circle No. 65 on Reader Service Card

and refrigeration sections into easily-moved packages. Reset switch on thermostat permits restarting unit at remote thermostat instead of entering installation.

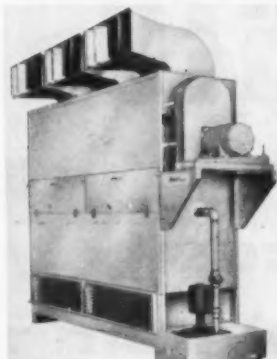
Circle No. 202 on Reader Service Card

**Spray Coolers**

**Product:** Line of floor type industrial refrigeration units.

**Manufacturer:** Imeco Inc., Chicago, Ill.

**Features:** Continuous liquid defrosting spray for lower temperature applications. Line has been extended to



include a range of sizes from 5000 cfm to 25,000 cfm with refrigeration capacities of from 3 to 24 tons. Designed to use brine or any suitable liquid as the defrosting medium and are made for use with ammonia, Freon, or brine as the refrigerant. Available arranged for fully flooded operation, liquid recirculation, or thermal expansion valve operation.

Circle No. 203 on Reader Service Card

**Filter Signal**

**Product:** "Filter Watcher" filter signal.

**Manufacturer:** Viking Instruments, Inc., East Haddam, Conn.

**Features:** Whistles when filters need changing to automatically tell when to clean or change filters on any air-conditioning, air handling, or forced warm air heating system. Installs on the blower enclosure between the filters and the blower. Installed by tapping a 1/4" air passage hole through the blower enclosure and affixing the signal with self-tapping screws.

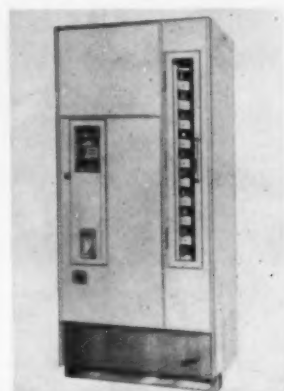
Circle No. 204 on Reader Service Card

**Beverage Vendor**

**Product:** "Bev/Serv 100" upright selective vendor.

**Manufacturer:** La Crosse Cooler Co., La Crosse, Wis.

**Features:** Ten flavor selections. Built in beverage illumination makes the bottles visible at all times. Displaces only 4 sq. ft. of floor area. Total vending capacity is 100 eight ounce bottles with the pre-cool section holding another 30 bottles bringing total capacity to 130 bottles.



Machine is adjustable to accommodate any size bottle from 6 to 12 ounces without the use of tools. Available in all the industry colors and product identifications with coin changers and coin rejectors set for any denomination sale.

Circle No. 205 on Reader Service Card

**Duct Silencers**

**Product:** "Quiet-Duct" line of package silencers.

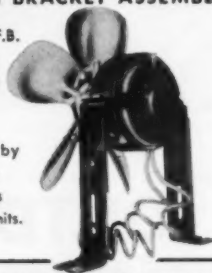
**Manufacturer:** Industrial Acoustics Co., Inc., New York, N.Y.

**Features:** New design features a bell-mouth entrance for minimum entrance loss and a solid nose entrance

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The Transaire M.F.B. provides a single stock, all purpose solution to the replacement problem created by the great variety of condenser fans on all hermetic units.



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**Established 1854**

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for maximum noise reflection. Available in a large range of models and sizes to meet all performance requirements for airconditioning and ventilating systems.

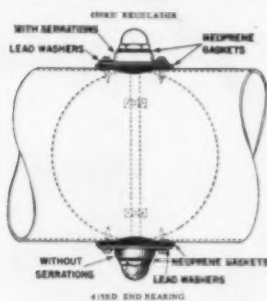
Circle No. 206 on Reader Service Card

### Damper Regulator

**Product:** Damper Regulator (No. 409RD).

**Manufacturer:** Young Regulator Co., Cleveland, Ohio.

**Features:** Developed especially for ducts carrying high pressures or low



vacuums. Can be installed in round ducts 4 to 8" in diameter and is recommended where pressure is over 6 psi. Neoprene gasket is used at the base. Lead washers under the metal screws enable the unit to withstand pressures in excess of 50 psi without leakage. To adjust damper, the end bearing acorn nut is loosened and the nut on the regulator is removed. Model 409FD has been developed for installation in rectangular ducts or round ducts over 8" in diameter.

Circle No. 207 on Reader Service Card

### Flow Indicator

**Product:** Ball indicator for low flows.

**Manufacturer:** McIntosh Equipment Corp., New York City.

**Features:** Visible from a distance, even in bad light, indicator can be used to detect flow of cooling water



to compressors and condensers. Flow makes ball dance in glass dome. When flow stops, ball drops out of sight. For flows down to 0.075 gpm for water and 1/2 cfm for gas or air. Only one moving part.

Circle No. 208 on Reader Service Card

### Food Merchandiser

**Product:** Self-contained merchandiser.

**Manufacturer:** McCray Refrigerator Co., Inc., Kendallville, Ind.

**Features:** For the display of meat, dairy or produce items in restricted



locations or at the end of gondolas. Two adjustable wall shelves and a bottom compartment for bulky items. Adjustable wire shelves for this compartment are optional. Plexiglas wings on each end as shelf retainers afford product visibility. Fluorescent lights in the top of the case and under the lower wall illuminate the entire display. Price tag moldings on both wall shelves and case top. No refrigerant or drain lines necessary. Length is 5'.

Circle No. 209 on Reader Service Card

### Algae Control

**Product:** "Sure Klean" algae and slime control.

**Manufacturer:** Process Solvent Co., Inc., Kansas City, Kan.

**Features:** Controls algae and slime while lubricating water pump bearings and seals; causing no rust, because it contains no chlorine; adds to the life of the tubing, because it contains no mercury salts to embrittle brass and copper alloys. Instantly dispensable in cold water and complete control is obtained by pouring into the cooling system water in the recommended quantities.

Circle No. 210 on Reader Service Card

### Ice Machine

**Product:** Flaked ice machine.

**Manufacturer:** Ross-Temp, Inc., Chicago, Ill.

**Features:** 500 lb. capacity. Can be conveniently placed under a back bar or in a service island. Two 1/3-hp hermetically sealed air-cooled compres-



sors provide ample capacity. Capacity ratings are based on 90 F air and 70 F water. Storage bin in all stainless steel. Cabinet is finished in bonderized steel, pearl gray hammerloid baked enamel with stainless steel service doors. Also available in all stainless steel cabinets.

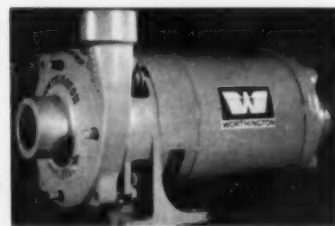
Circle No. 211 on Reader Service Card

### Line of Pumps

**Product:** "Econobloc" line of pumps.

**Manufacturer:** Worthington Corp., Harrison, N.J.

**Features:** Designed for economical application in the airconditioning in-



dusty. Available in six sizes in the fractional horsepower range deliver up to 80 gpm and heads to 110 ft. Above 1 1/2 hp and up to 7 1/2 hp.

Circle No. 212 on Reader Service Card

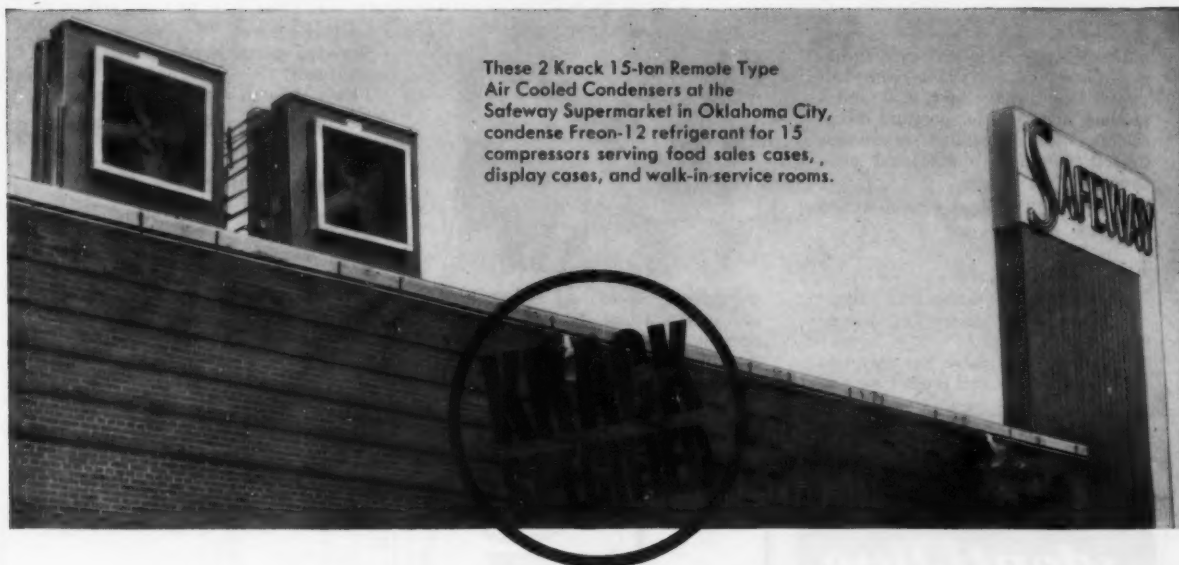
### Remote Refrigerator

**Product:** "V-line" refrigerator (Model VS-48-S).

**Manufacturer:** Victory Metal Mfg. Co., Plymouth Meeting, Pa.

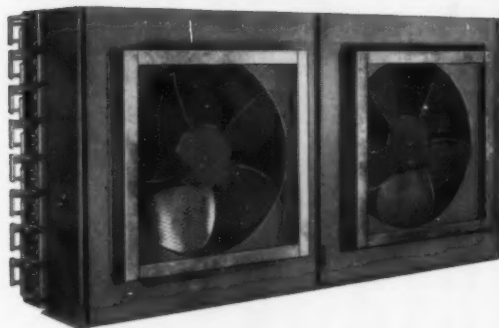
**Features:** Interchangeable interiors can be easily changed in minutes without tools. Can be equipped with pull-out or stationary shelves, adjustable-type pane slides, pull-out or stationary meat rails, pull-out or fractional pan supports and ball bearing





These 2 Krack 15-ton Remote Type Air Cooled Condensers at the Safeway Supermarket in Oklahoma City, condense Freon-12 refrigerant for 15 compressors serving food sales cases, display cases, and walk-in service rooms.

## Count on KRACK to Deliver RATED CAPACITIES



### Service calls? Not with Krack Air Cooled Condensers

Eliminate maintenance problems when you install Krack Air Cooled Condensers. Forget about down time for draining, scale removal and periodic overhauls. No water is required. Destructive corrosive action from water is gone and so are costly callbacks.

Krack Air Cooled Condensers give completely automatic performance all year 'round... deliver top capacity at any temperature. Krack Winter Control compensates for pressure variations caused by temperature changes. One push button stops or starts complete system. Multiple circuiting available to suit the individual job. Choice of direct drive or belt fans. Capacities: 1 to 90 tons.

*"We chose Krack Air Cooled Condensers for Safeway because of full rated-capacity performance, low cost, and better delivery."*

—L. C. Nettleship, Jones-Newby Supply Co., Oklahoma City

You can depend upon all Krack refrigeration and air conditioning equipment to consistently and safely perform at top capacities. You enjoy these advantages:

#### Be sure of matching the equipment to the job

With Krack there is no uncertainty about actual performance. You don't have to "play it safe" by specifying more costly, "oversize" equipment for a job when it is not needed.

#### Gain the advantage of lower bidding

By saving the cost of specifying "oversize" equipment to compensate for uncertain performance, you can bid lower and win more jobs.

#### Save installation and maintenance headaches

With Krack job-rated equipment, installations go more smoothly, and costly service calls for repairs and adjustments are rare. A good way to retain priceless customer good will.



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9521

Circle No. 68 on Reader Service Card

drawers. Controlled air flow assures uniform temperature and air distribution throughout. Available with half or full length doors in 1, 2, 3, and 4 sections in normal temperature refrigerators, warming cabinets or freezers in self-contained, remote and pass-thru models.

Circle No. 213 on Reader Service Card

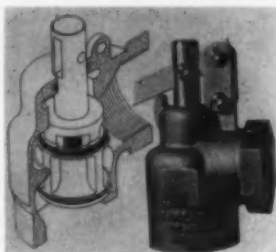
#### Float Valve

**Product:** Direct action float valve.

**Manufacturer:** Marley Co., Kansas City, Mo.

**Features:** This valve has only two basic parts—body and plug. Plug and

stem are cast as an integral unit. Body, also cast as a unit, has threaded inlet opening. Outlet opening may be threaded if desired. There are no packing glands, packing nuts, cup



leathers or seat discs; no ground or threaded parts. Non-corrosive metals are used throughout the valves. Floats are either plastic or copper.

Circle No. 214 on Reader Service Card

#### Pocket Thermometer

**Product:** "Gold Ribbon" pocket thermometer.

**Manufacturer:** Bacharach Industrial Instrument Co., Pittsburgh, Pa.

**Features:** High resistance to mechanical and thermal shocks. Numerals and graduations are etched, black-filled, and magnified against a sealed-in yellow background on double-wing, flat reading surfaces. Two ranges: -40 to 120 F, mercury filled; and -50 to 120 F, red spirit filled. Refill can be installed in any commonly used 5" long pocket thermometer.

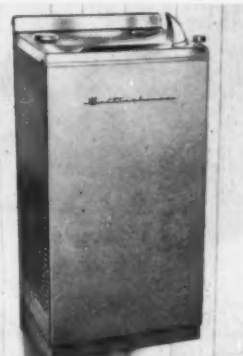
Circle No. 215 on Reader Service Card

#### Water Cooler

**Product:** Water coolers to be installed flush to the wall (Model WL7D).

**Manufacturer:** Westinghouse Electric Corp., Columbus, Ohio.

**Features:** These coolers, when mounted flush to the wall, have all



plumbing concealed and space underneath can be used for cleaning and waxing the floor. Has capacity of 7 gph. Model WL11D has capacity of 11 gph. Both models have finned tube condensers which are fan cooled. Bubbler is hand actuated.

Circle No. 216 on Reader Service Card

#### Machine Mount

**Product:** "UL" level-rite machine mount.

**Manufacturer:** Unisorb Div., Felters Co., Boston, Mass.

**Features:** For use under machines. Leveling screws are built into feet or at load-bearing points. Combines vibration control pads with cast steel base plate. Eliminates need for anchor bolts, lag screws, grouting and shim plates. Machine is completely portable. Pad reduces vibration up to 85%, protects machine against induced vibration, allows high ma-

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**identi-line**

**IDENTICAL REPLACEMENT  
REFRIGERATOR  
DOOR GASKETS**

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(\*Except where original replacements are furnished in measured lengths only)

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Circle No. 99 on Reader Service Card



# AIR COOLED CONDENSING UNITS (Continued)

Model No.	Standard Rating Btu/h	W	Cabinet Size (in.)	D	Type	Compressor RPM	Make	HP	Compressor Motor Voltage	No.	Cond. Blower CFM	RPM	Cond. Blower Motor HP	Refrig. No.	Up Flow	Down Flow	Evap. Coil & Blower Available	Coil & Blower Comb.	Net Wt. (lb.)	Cond. Unit
<b>Williamson Co., The, Cincinnati, Ohio — "Weathermatic"</b>																				
2HP	24,000*	48 1/4	32 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	329	
3HP	30,000*	48 1/4	32 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	374	
4HP	36,000*	48 1/4	32 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	396	
5HP	48,000*	52 1/4	32 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	586	
7.5HP	60,000*	54	34	28 1/4	H	1750	BW	2	1	220				22	✓	✓	✓	✓	700	
10HP	90,000*	67	41	32	H	1750	BW	2	1	220				22	✓	✓	✓	✓	934	
ASRE standard rating, Btu/h.	120,000*	67	41	32	H	1750	BW	2	1	220				22	✓	✓	✓	✓	1100	
<b>Mueller Climatrol, Div. of Wor</b>																				
918-21	22,000	24	31 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	329	
918-31*	34,000	34 1/2	30 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	374	
918-41*	45,000	48 1/4	30 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	586	
*Also available in 3 phase, 208/220 v.	56,000	48 1/4	30 1/2	21 1/2	H	1750	BW	2	1	220				22	✓	✓	✓	✓	700	
<b>Therm-Air Mfg. Co., Peckskill, N</b>																				
AIR-2	24,000	54 1/4	34 1/4	39	2	2	34 1/4	39						22	✓	✓	✓	✓	329	
AIR-3	36,000	54 1/4	34 1/4	39	2	2	34 1/4	39						22	✓	✓	✓	✓	374	
AIR-5	57,000	68	48	39	2	2	34 1/4	39						22	✓	✓	✓	✓	586	
AIR-10	83,000	84	39	39	2	2	34 1/4	39						22	✓	✓	✓	✓	700	
<b>Trane Co., The, La Crosse, Wis. — "T"</b>																				
RUA-21*	22,600	40 1/2	25 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓	273	
RUA-31*	33,000	40 1/2	25 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓	373	
RUA-41**	48,000	47 1/2	31 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓	673	
RUA-51**	57,000	53 1/2	31 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓	693	
RUA-73**	78,000	58 1/2	31 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓		
*Also available in 3 phase 208/220 v.	44 1/2	31 1/2	31 1/2	31 1/2	3	3	31 1/2	3						22	✓	✓	✓	✓		
<b>Cobell Industries Inc., Cleburne, Tex. — "C"</b>																				
A-372-C1*	36,000	35 1/2	26	48 1/2	3	3	48 1/2	3						22	✓	✓	✓	✓	383	
A-374-C1*	47,000	35 1/2	27	48 1/2	3	3	48 1/2	3						22	✓	✓	✓	✓	420	
A-375-C1*	59,000	35 1/2	27	48 1/2	3	3	48 1/2	3						22	✓	✓	✓	✓	700	
A-383-T1*	32,000	34	23 1/2	32 1/2	3	3	32 1/2	3						22	✓	✓	✓	✓	900	
A-384-C1*	43,000	34	23 1/2	32 1/2	3	3	32 1/2	3						22	✓	✓	✓	✓	1200	
*Also available in 3 phase, 208/220 v.	30 1/2	30	30 1/2	30 1/2	3	3	30 1/2	3						22	✓	✓	✓	✓		
<b>Vestinghouse Electric Corp., Staunton, Va.</b>																				
J-3018	22,000	31 1/4	24 1/4	31 1/4	3	3	31 1/4	3						22	✓	✓	✓	✓	400	
J-4018*	33,000	31 1/4	24 1/4	31 1/4	3	3	31 1/4	3						22	✓	✓	✓	✓	440	
3018*	46,000	36 1/4	27 1/4	31 1/4	3	3	31 1/4	3						22	✓	✓	✓	✓	630	
4328*	36,000	36 1/4	27 1/4	31 1/4	3	3	31 1/4	3						22	✓	✓	✓	✓	710	
4328C*	55,000	36 1/4	27 1/4	31 1/4	3	3	31 1/4	3						22	✓	✓	✓	✓	950	
3028	75,000	51 1/2	40 1/2	30 1/2	3	3	30 1/2	3						22	✓	✓	✓	✓		
***	112,000	68	37 1/4	34	3	3	34	3						22	✓	✓	✓	✓		
**	154,000	68	37 1/4	34	3	3	34	3						22	✓	✓	✓	✓		
Also available in 3 phase, 208/220 v.	48	47 1/4	34	34	3	3	34	3						22	✓	✓	✓	✓		
<b>Central Mfg. Co., Phoenix, Ariz. — "Continental"</b>																				
38,000	30	29	28	34	H	1750	BW	2	1	220				22	✓	✓	✓	✓	220	
57,000	32	29	28	34	H	1750	BW	2	1	220				22	✓	✓	✓	✓	330	
63,000	34	26	34	32	H	1750	BW	2	1	220				22	✓	✓	✓	✓	560	
96,000	...	32	48	...	H	1750	BW	2	1	220				22	✓	✓	✓	✓	773	
122,000	...	...	...	...	H	1750	BW	2	1	220				22	✓	✓	✓	✓	920	
...	...	...	...	...	H	1750	BW	2	1	220				22	✓	✓	✓	✓	871	
...	...	...	...	...	H	1750	BW	2	1	220				22	✓	✓	✓	✓	1010	
...	...	...	...	...	H	1750	BW	2	1	220				22	✓	✓	✓	✓	315	

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### SECTION B Water Cooled Packaged Airconditioners

Packaged Water Chillers

### SECTION C Room Airconditioners

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chine speeds and cuts noise. UL available in sizes from 4½" square to 10½" square with maximum loadings per unit up to 7500 lb.

Circle No. 217 on Reader Service Card

#### Insulation Fastener

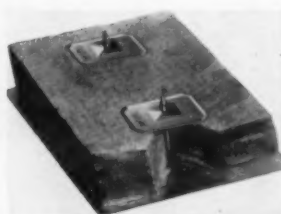
**Product:** "Insul-Pin" stud welding system.

**Manufacturer:** Omark Industries, Inc., Portland, Ore.

**Features:** For permanently attaching interior and exterior insulation to metal. Offers secure fastening of regular and high temperature insulation to galvanized ductwork, alumi-

num ducts, industrial furnaces, refrigeration room facings, corrugated iron and steel plate. Lightweight welding guns and portable welding machines make it possible to work in cramped quarters.

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the one with  
ALL the  
most wanted  
features...*

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- Pyrex glass, double pressure sealed at sides and ends
- Positive check of refrigerant condition
- Unrestricted full line flow
- Spring-loaded gaskets insure positive seal against leakage
- Guaranteed to 500 PSI
- Precision made

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**Manufacturing Company**

410 NORTH HERMITAGE AVENUE • CHICAGO 22, ILLINOIS  
Over 1,000,000 Liquid Eyes in use today!

#### Chemical Solvent

**Product:** "Swish Elektrokleen" spray can solvent.

**Manufacturer:** Montgomery Chemical Co., Jenkintown, Pa.

**Features:** For use in cleaning electric motors and parts of oil, grease, dirt, dust and other materials. Aerosol spray utilizes nozzle which provides a long-range, concentrated drenching spray to flush off undesirable foreign materials. Will drain off and dry or may be wiped off with a cloth or absorbent paper. Non-combustible, non-toxic, non-corrosive. Will not stain or corrode metals or attack paint.

Circle No. 219 on Reader Service Card

#### Room Airconditioners

**Product:** Complete line of room airconditioners.

**Manufacturer:** Coolerator Div., McGraw-Edison Co., Albion, Mich.

**Features:** Eight models in Custom series have capacities from 10,000 to



19,100 Btus. In Super series, capacities are 1 and 2 hp. Four models in Compact series range from 6700 to 8600 Btus. Lightweight portable model has 4200 Btus with ½ hp compressor. In addition to straight cooling models, three reverse cycle models come in 1 hp Super and two Custom models with 1½ and 2 hp capacities.

Circle No. 220 on Reader Service Card

#### Safety Switch

**Product:** Heavy-duty NEMA 12 safety switch.

**Manufacturer:** Square D Co., Lexington, Ky.

**Features:** Redesigned padlock attachment. New attachment will accommodate up to four padlocks, plus



a cover padlock if required. In addition, the switch can be locked in the on position if required by punching out a small knockout. Large, heavy-duty cast handle.

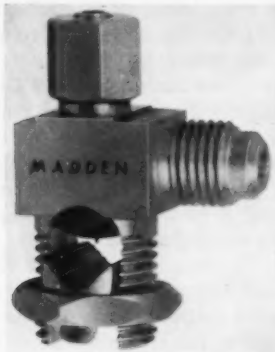
Circle No. 221 on Reader Service Card

#### Tube Piercing Valve

**Product:** Tube piercing valve (Model HP-41A).

**Manufacturer:** Madden Brass Products Co., Aurora, Ill.

**Features:** Combines V-block and locknut in one unit. Requires no



special tools, no extra parts to assemble and to be carried by user. No handles to prevent accidental turning. Mounts in any position. Can be used for fast testing, charging or purging of any hermetically sealed unit.

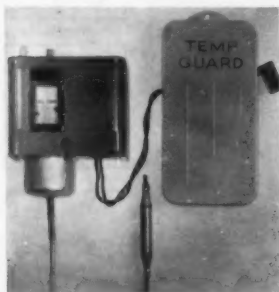
Circle No. 222 on Reader Service Card

#### Alarm System

**Product:** "Temp-Guard" refrigeration failure alarm.

**Manufacturer:** Richmond Refrigeration Service, Inc., Staten Island, N.Y.

**Features:** Gives both visible and audible signals of refrigerator case



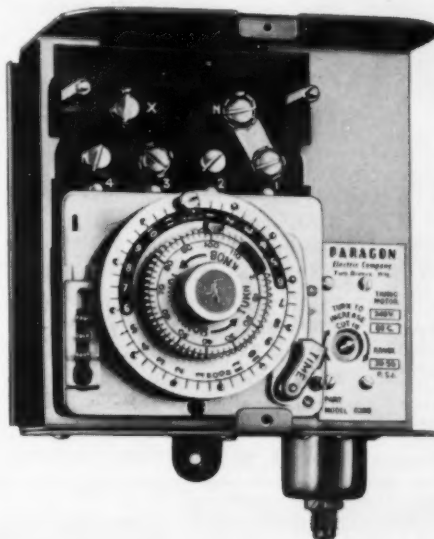
failure. For use by supermarkets, butchers and other users of refrigerating equipment. Sounds a warning buzzer and raises a mechanical flag when temperature in a refrigerated case or chill room rises above safe levels. Time delay prevents the alarm from operating during normal defrosting periods or during short duration temperature rises. Low voltage operation.

Circle No. 223 on Reader Service Card

## PARAGON'S 8200 SERIES

# D-FROST-O-MATIC®

has more exclusive features for more precise, safer defrost control



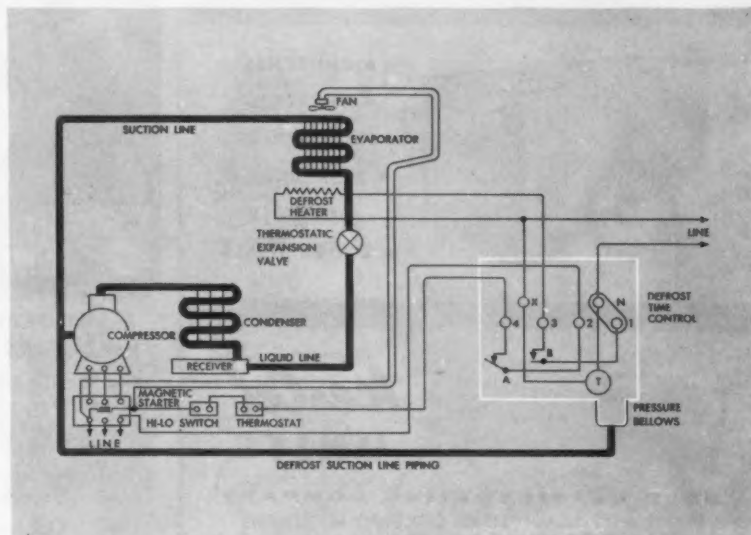
**EXCLUSIVE:** Length of defrost cycle determined by pressure increase . . . not by time.

**EXCLUSIVE:** 100% adjustable fail safe protection. Will transfer switch if equipment is not brought back into a refrigeration cycle by an increase in pressure within a specified period of time. Pressure cut-in is adjustable too.

**EXCLUSIVE:** Heavy-duty, self-starting, 4-watt industrial-type motor.

**EXCLUSIVE:** Adjustable pressure cut-in.

For complete details write for BULLETIN NO. 5949.



**PARAGON**  
ELECTRIC COMPANY

1327 Twelfth St. • Two Rivers, Wis.

TIME IS MONEY...CONTROL IT WITH PARAGON

Circle No. 71 on Reader Service Card

## CENTRAL SYSTEM VALUE SET AT \$715,080,000

Installed cost of central station airconditioning systems in 1959 was estimated at \$715,080,000, according to Air-Conditioning and Refrigeration Institute, compared to \$604,130,000 in 1958.

These figures are based on shipments for use in this country of compressors, condensing units, absorption systems, and centrifugal and reciprocal liquid-chilling packages of 25 hp or more. Brine chillers or equipment using ammonia as refrigerant are not included.

Big systems still account for the largest share of sales.

Quoted figures represent installed value of equipment in place, rather than value of manufacturers' shipments. Cost from 1950 through 1957 were:

1957	\$604,730,000
1956	537,410,000
1955	390,390,000
1954	341,860,000
1953	255,360,000
1952	206,550,000
1951	252,890,000
1950	222,060,000

## SOFT-DRINK DISPENSER HAS FEW WORKING PARTS

Elimination of many working parts is a feature of the latest visual selective upright dispenser developed for Pepsi-Cola by La Crosse Cooler Co.

By limiting parts, company engineers believe malfunctioning can be curtailed and a machine will pay for itself more rapidly.

The 1/4-hp self-contained refrigeration system, using a Tecumseh condensing unit, can be removed intact if necessary.

## TRUCK STANDARD ISSUED

First standard (No. 1110-59) for refrigeration units in trucks and trailers has been published by Air-Conditioning and Refrigeration Institute.

The new standard is for speed-governed transport refrigeration units using forced-circulation air-coolers. A speed-governed unit has a drive designed to operate at a constant, although possibly adjustable, speed.

Work on a standard covering

hydraulic-drive and other types of variable-speed units will start immediately. Also on the present agenda is an application standard to relate standard ratings and other performance characteristics of both types of units to a certification program.

## WORTHINGTON LINE HAS GERM-FREE AIR FILTERS

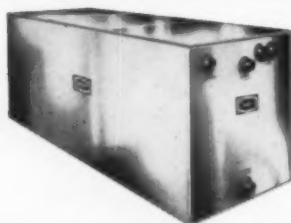
A new germicidal, replacement type air filter is available in the latest line of fan-coil room airconditioners by Worthington Corp. Manufactured by Fram Corp., the filter is treated with "Permachem."

Laboratory tests indicated the filter was a major factor in removing germs and kills 99% of germs normally bred in filters.

In Worthington units, the filters are mounted in heavy-duty, moisture-resistant frames. Filter change is made easily, according to Fram.

**YOUR WHOLESALE  
CAN SERVE YOU — LET HIM!**

## LATENT HEAT STORAGE FOR AIR CONDITIONING



- CHURCHES
- THEATRES
- CAFETERIAS
- MORTUARIES
- OFFICES
- LODGE HALLS

- LOW INITIAL INVESTMENT
- ECONOMICAL OPERATION

**Ice-Cel  
UNITS**

**DOLE REFRIGERATING COMPANY**

5942 NORTH PULASKI ROAD, CHICAGO 46, ILLINOIS  
103 PARK AVENUE, NEW YORK 17, N. Y.

Dole Refrigerating Products Limited, Oakville, Ontario, Canada

Write for Engineering Catalog BAE

**DEPENDABLE  
AIR CONDITIONING**



Circle No. 73 on Reader Service Card



## INDUSTRY'S LEADING PIPE THREAD COMPOUND

Get \*Plastic Lead Seal in the handy-to-use 4-oz. plastic applicator tube. It's an ideal size for tool and service kits. Tube won't damage when dropped or hit by blunt tools...never cracks at seams.

Use PLS for water, steam, gas, chemical, refrigerant or petroleum services...pressures to 6000 psi., temperatures to 500°F. Seals permanently. Never hardens.

Request Sample Tube. Better yet, send order for special 12-tube package. Act now.



**CRANE PACKING COMPANY**

6455 OAKTON STREET, MORTON GROVE, ILL. (Chicago Suburb)

Circle No. 72 on Reader Service Card  
MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS

**HANDY  
TO USE...  
IDEAL FOR  
SERVICE  
KITS**



Applicator Tip



Won't Crack



Resists Damage



For Service Kits



## WATCHDOG

Continued from page 71

90 seconds after the motor controlling device calls for refrigeration. Except for this lag period it will indicate when the refrigeration system should be operating. It will also indicate when the Sentry is active. Its primary purpose is to let the equipment owner or operator know when he can press the red test button without having to actually check his refrigeration equipment to see if it is running.

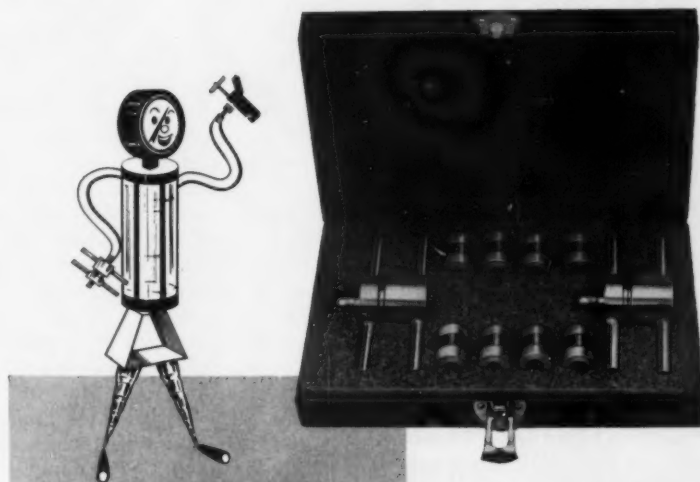
Sensitivity of the Sentry can be controlled to meet the de-



sired conditions simply by varying the length of the liquid line probe. For standard applications the sensitivity is established at a point which will not cause the device to signal unless the bubbling in the refrigerant line is severe enough to make it possible for the serviceman to quickly and correctly diagnose the cause.

While the Sentry is designed to signal equipment troubles in their earliest stages, there are some malfunctions that cannot be detected before temperature begins to rise in the refrigerated space. A stopped up evaporator due to dirty filters or a burnt out evaporator blower fan motor would be typical examples.

To protect against such situations the Sentry is designed so that a remote bulb thermostat can be mounted in the refriger-



## "ROBBI" TOOLS ..for greater REFRIGERATION SERVICE PROFITS

"Robbi's" 12458 Process Tube Fittings provide the fastest, easiest, and surest method of connecting charging lines for evacuating, dehydrating and recharging refrigeration systems with process tube accesses. Tool design assures an absolute seal from tube to charging hose eliminating necessity of flaring tubing and possibility of getting tube chips in system. Tool handles all  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ " tubing.



CONTACT YOUR "ROBBI" WHOLESALE AND ORDER TODAY

**ROBINAIR MANUFACTURING CORPORATION**  
MONTPELIER, OHIO

Circle No. 74 on Reader Service Card

# NOW competitively priced! NEW **Aeromaster** INDUSTRIAL COOLING FAN



Performance, construction, and price make this the "best buy" in industrial fans! Delivers more CFM with less H.P. Features a ductile iron hub, removable blade retention caps, heat treated aluminum alloy blades with constant chord width and flanged ends. 4, 6 and 8 bladed fans available in 54" to 120" diameters. Maximum tip speed is 15,000 ft./min. Easy to install . . . easy to maintain. For complete details, write: KOPPERS COMPANY, INC., 5005 Scott Street, Baltimore 3, Md.



**Aeromaster  
Fans**

Engineered Products Sold with Service

Circle No. 75 on Reader Service Card

ated space and connected to the indicator unit with low-voltage wiring. This control will then supersede the sensing probe in cases of malfunctions which can be detected only on a temperature rise. Control bulb of the special thermostat is immersed in a eutectic solution so that it will not give a false alarm during defrost periods or during periods of heavy loading or use.

Addition of such a control normally would not be required on airconditioning installations, but is recommended for food stores, locker plants, blood banks, or other jobs where a costly or important product is involved.

On multiple installations, as many as five condensing units can be connected to a single indicator unit and remote alarm. While only one condensing unit can be checked at a time by means of a selector switch, this type of installation will monitor all of the refrigerated spaces simultaneously and signal a temperature rise regardless of

what condensing unit is being watched.

So what does all this mean to you as a refrigeration and air-conditioning contractor? It means that you can offer your customers a new measure of protection against refrigerant or product loss. It means that you can provide them better insurance against equipment failure at lower maintenance costs. It means you can have a plus benefit to sell in competitive situations. And it means that you can give better service to your customers by spotting and eliminating potential troubles before emergency calls are required.

If all this sounds like a good deal to you, you're probably ask-

**D**U Pont's "Freon-14," originally developed as a refrigerant, is being used to keep earth satellites positionally stable as they spin in outer space. This tetrafluoromethane compound, combined with nitrogen, gives enough thrust to change the rocket's attitude.

Freon was picked because it packs a lot of power in a small weight space. Once the satellite separates from its booster, the Freon-nitrogen powered miniature reaction jet nozzles are responsible for the vehicle's control.

The entire control system, weighing only 70 lb., is located in the final stage of the rocket.



## VAPCO-PHOS NUGGETS

For complete protection against recurrence of scale, rust, corrosion, algae and slime. Nuggets dissolve uniformly and slowly for long-term protection. Apply by hanging in spray, submerging in sump, or through a feeder. Plastic feeder bags supplied with 3 and 10 lb. cans. 50 and 100 lb. drums also available.

## VAPCO-SLIME-X

For positive control of algae and slime. Harmless to wood or other parts of system. 10 ounce cans and 25 pound drums.



Complete literature on request or see your dealer TODAY!

**GARMAN  
COMPANY**  
ST. LOUIS 25, MO.

Circle No. 76 on Reader Service Card

ing: What about cost? Is all this electronic system too expensive to be practical? Or can the price be justified in terms of results?

Here are some facts that will help you answer these questions for yourself.

Total cost of equipment and materials for installation of a Televance Sentry on a single condensing unit would run less than \$100 at present prices. Each remote bulb thermostat added to this installation for protection against temperature rise in refrigerated fixtures or rooms would increase this cost somewhere between \$15 and \$20. Of course if the Sentry is hooked up to a number of condensing units, the cost per unit drops.

All you need do to make your own decision is weigh this cost against the protection the Sentry promises.

# JANITROL

*presents  
the new and  
versatile*

52 series

AIR-COOLED  
AIR-CONDITIONER



A PRACTICAL APPROACH TO ECONOMICAL,  
HIGH EFFICIENCY COOLING FOR COMMERCIAL—  
INDUSTRIAL BUILDINGS

# NEW JANITROL 52 SERIES AIR COOLED AIR CONDITIONERS

Outwardly beautiful and pleasing to the eye, inwardly rugged and powerful, new Janitrol 52 Series units combine years-ahead styling and cooling performance . . . provide truly low-cost central cooling with matchless reliability and performance.



## JANITROL'S ADVANCED DESIGN . . . A SAFEGUARD AGAINST PRODUCT OBSOLESCENCE!

The weatherproof, high-efficiency 52 Series condensing unit, containing all moving refrigeration parts, installs outside. Available in six basic capacities from 22,200 to 110,200 btu/hr.



Full A.R.I. certification: Every Janitrol unit meets all standards of Air Conditioning and Refrigeration Institute.

## STANDARDS OF EXCELLENCE . . .

**In Performance**—large condensing coils assure efficient operation with outdoor temperatures up to 125°F!

**In Styling**—crisp, modern lines distinguish the new 52 Series. Cabinets are finished in durable, automotive-type enamel.

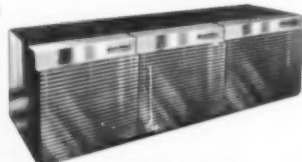
**In Economy**—The top-mounted fan bathes condensing coils in a jet stream of cooling air to raise efficiency and reduce current usage. Coils are shaded from the sun by louvers.

**In Quietness**—The powerful compressor is mounted on rubber-cushioned, resilient springs . . . cabinet is heated with special sound-deadening material.

**In Safety**—Complete overload and weather protection is provided. Enclosing grilles thoroughly safeguard children and pets.

**In Servicing Ease**—all components are easily accessible. Service panels can be removed without effecting operation during service checks.

## MULTIPLE COMBINATIONS PROVIDE ECONOMICAL, HIGH CAPACITY COOLING



Modular cabinet design and upflow exhaust permit compact, multi-unit installations. Only the grilled, air-intake side of the cabinet requires clearance.

Any desired number of Janitrol 52 Series units may be installed together, with zero clearance between, to provide a variety of higher capacity combinations from 120,000 to over 1,000,000 btu/hr. Only Janitrol offers custom-built capacities at standard model cost!

## JANITROL

### year 'round conditioner

Combines quality gas heating and waterless cooling! Less than four sq. ft. of floor space needed for most installations. Features include famous Dura-Tube heat exchanger with 20-year warranty. Unique bypass for correct air flow on heating or cooling cycle without adjustments. Powerful air-cooled 52 Series condensing unit. ADD-ON cooling—install for heating only, add cooling later.



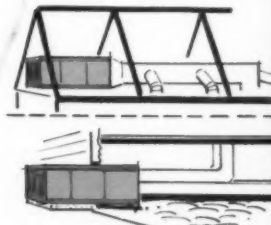
## ADD-ON COOLING

Adapts most any warm air furnace for thrifty, efficient central cooling. Cooling coil mounts in duct, attractive, air-cooled 52 Series unit goes outside. Powerful, quiet performance with outside temperatures to 125°F. Easy to install.



## "J-LINE" self-contained conditioners

An economical solution for many cooling needs. One compact unit contains blower, compressor and coils. For use with ducts or as free discharge. Install through wall in crawl space, attic or other limited access locations.



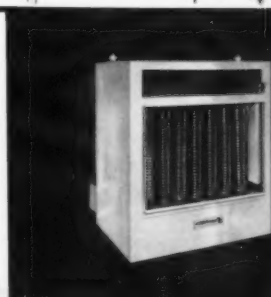
## BLOWER-COIL UNITS

Smartly styled cabinet contains cooling coil and blower for use as free discharge or with ducts. Units are attached to ceiling to save floor space. Very quiet and efficient!



## GAS-FIRED DUCT FURNACES

For installation in a duct where the air is circulated by a separate blower. Especially adaptable for industrial heating applications in combination with cooling. 73 Series in six sizes from 50,000 to 225,000 btu/hr. 72 Series in sizes 200,000 and 300,000 btu/hr. may be combined to provide unlimited capacity range.



**JANITROL** HEATING AND AIR CONDITIONING  
A DIVISION OF MIDLAND-ROSS CORP. • COLUMBUS 16, OHIO  
IN CANADA: MOFFAT HEATING & AIR CONDITIONING DIVISION  
MOFFATS LTD., TORONTO 15  
ALSO MAKERS OF SURFACE INDUSTRIAL FURNACES, KATHABAR HUMIDITY CONDITIONING,  
JANITROL RESIDENTIAL HEATING AND COOLING EQUIPMENT



## COMPRESSOR SHIPMENTS SHOW GAIN LAST YEAR

Manufacturers' shipments of compressor bodies totaled 4,926,657 units in 1959, according to Air-Conditioning and Refrigeration Institute. This represents a gain of almost 37% over '58 when totals were 3,597,075.

Of total figures, 89.2% were sold as compressor bodies, compressors, or condensing units. Only 10.8% were sold as unitary end-use products. Bodies for automotive airconditioning compressors for 1959 totaled 527,973.

### Manufacturers' Shipments of Compressor Bodies

(Except for household refrigerators)  
Shipments Including Exports

Horsepower	1959	1958
1/6 HP & Under	695,608	1,199,364
1/5 HP		
1/4 HP	884,487	
1/3 HP	326,918	225,894
1/2 HP	153,209	181,522
3/4 HP	99,706	69,565
1 HP	1,164,683	713,464
1 1/2 HP	287,176	243,579
2 HP	434,333	283,709
3 HP	156,996	103,914
4 HP	18,832	
5 HP	96,829	68,810
7 1/2 HP	42,451	33,762
10 HP	15,931	10,013
15 HP	6,785	4,578
20 HP	1,969	1,969
25 HP	2,573	1,992
30 HP	2,123	2,026
40 HP	2,227	2,053
50 HP	1,409	1,430
60 HP	1,135	1,043
75 HP	815	699
100 HP & Over	608	461
<b>TOTAL</b>	<b>4,396,803</b>	<b>3,149,847</b>
For Automotive Air-conditioning—Total	527,973	445,487
For Ammonia Refrigerant—Total	1,881	1,741
<b>GRAND TOTAL</b>	<b>4,926,657</b>	<b>3,597,075</b>

### DUNHAM-BUSH UNITS COOL TWO HOSPITALS

Two Indiana hospitals have recently been equipped with Dunham-Bush units for year-round airconditioning. Installations were at Doctors Hospital, Michigan City, and Clark County Memorial Hospital, Jeffersonville.

Both installations utilized "Multi-Zone" units for independent temperature control of various areas; remote airconditioning units for individual control in patient rooms, and a "Heat-X" packaged water chiller as cooling mediums for the buildings.

## ROBERTSHAW MARKETS FREE PISTON COMPRESSOR

A free piston engine-compressor unit for gas airconditioners is scheduled to be added to the line of products manufactured and marketed by Robertshaw-Fulton Controls Co.

The units can be adopted by any present manufacturer of Freon cooling airconditioners. It consists of an efficient internal combustion engine combined with a refrigerant compressor,

and has only one moving part.

There are no mechanical links from the piston to the use of power. Combustion of gas takes place at one end of the cylinder, and compression of the refrigerant takes place at the other. From this point, cooling action is the same as in conventional airconditioners.

The unit was developed by scientists of the Battelle Memorial Institute under the AGA's PAR research program.



**KMP** MOISTURE MAGNET DRIERS

**Now**

**LITTLE GIANT®**

**DRIER with**

**TRIPLE FILTRATION**

*for General Field Service Work on hermetic and open type units*

- Here is the smallest, most powerful, easiest-to-install drier made. It will eliminate the worst moisture, screen-out sludge and foreign particles—conditions encountered in general field service work. Though small, the "Little Giant" has ample capacity to handle up to 3/4 hp with F-12. "Little Giant" desiccant charge is 100% molecular sieve.
- Driers are completely dehydrated and the ends fused and sealed to insure dryness. KMP's undercutting feature permits tubes to be quickly snapped off, as well as cut off, swaged, flared or bent to take care of all field applications from capillary sweat connections to 1/4" flare.

**Also available**

is a complete line of KMP silica gel and molecular sieve moisture magnets. A minimum of models will handle 1/4 to 10 ton units. All are backed by KMP—leading supplier to over 80% of the original equipment manufacturers.

**SEE THE KMP COMPLETE LINE AT YOUR REFRIGERATION WHOLESALE**

**KMP** KENMORE MACHINE PRODUCTS, INC.  
LYONS, NEW YORK

Driers • Accumulators • Accumulator Driers • Strainers • Capillary Assemblies

IN CANADA: Kenmore Machine Products (Canada), Limited, Grimsby, Ontario

## ABOUT PEOPLE

*Continued from page 16*

Inc. Formerly in charge of special accounts, Seibert will now direct the department, which includes both room and central system airconditioning.

Concurrent with the opening of its Pittsburgh, Pa. office, Vilter Mfg. Co. has appointed **David N. McCormick** district manager. The office will serve the company's customers in western Pennsylvania and New York. McCormick joined the organization in 1957.

Research Products Corp. has announced the addition of **Glenn A. Olsen** to its sales staff. Olsen's territory will include Arkansas, Oklahoma, North Texas, and Memphis, Tenn. His headquarters will be in Oklahoma City, Oklahoma.

Two managerial appointments have been announced by American-Standard Air Conditioning Div. **H. E. Russell, Jr.** has been named general sales manager, and **R. J. Berkshire** as general marketing manager. Russell will



Russell



Berkshire

be in charge of all field sales activities. Berkshire will be in charge of the division's marketing plans and services, market research, product development, advertising and sales promotion, and the division's expanded training school for distributors and dealers.

New general sales manager at Cornell-Dubilier Electric Corp. is **Raymond T. Leary**. Formerly vice president and sales manager of the distributor division, Leary joined the company in 1946.

**Arthur E. Duwe** has been appointed as representative for Stoddard Industries, Inc. He will sell dust-magnet filters in the Milwaukee, Wis., area.

**N. Bert Persson** has been appointed a vice president of Food Service Engineering Corp., Philadelphia, Pa.

Lennox Industries Inc. has announced the appointment of **Robert A. Pierce** and **F. Gordon Lenzi** as general manager and sales manager of the Syracuse, N. Y., division. Pierce, former



Pierce



Lenzi

sales manager of the division, fills the post vacated by the recent death of H. G. Krayenhof. Pierce joined the company in 1946. Lenzi also joined in 1946, and has served as New England division manager since 1951.

**Richard C. Walker** has been appointed general sales manager of Manitowoc Appliances, a division of Manitowoc Equipment Works. He joined the company from Westinghouse where he served as a sales executive.

**W. H. Winn** has been named national sales manager of room airconditioners for Gibson Refrigerator Co., Div. of Hupp Corp. He formerly was sales supervisor of airconditioning and heating at Frigidaire Div., General Motors Corp.

Two new appointments have been announced by Viking Air Products Div., National-U. S. Radiator Corp. **Ralph Ellsworth** has been named dealer sales pro-



Ellsworth



Doerrer

motion manager for Cuyahoga County, Ohio. **Charles E. Doerrer** has been appointed to that position for the St. Paul and Minneapolis, Minn. territory.

**Arthur F. Bernthal** has been appointed managing director of research and development laboratories at Bundy Tubing Co. With the company for more than 25 years, Bernthal formerly was advertising and sales development manager.

**Robert A. Wasson** has been elected president and general manager of Clarage Fan Co. Wasson, who has been vice president and general manager since 1945, succeeds Harry R. Clarage, who died recently.

**Marc McGuire**, assistant sales manager of Utility Fan Corp., a Div. of Utility Appliance Corp., has been promoted to the post of sales manager. In his new capacity McGuire will supervise a planned expansion program for the company. Prior to joining Utility four years ago he served with U.S. Electrical Motors.



**Bernard E. Konopka** has been named eastern division manager and sales manager for Metrex Valve Co. with headquarters at

the firm's home office in Franklin Park, Ill. He formerly was product design engineer and sales manager at March Mfg. Co.

**Harry E. Porter** has been named regional field sales manager for Pittsburgh Corning Corp. Located in Houston, Tex., Porter will supervise sales activity in the southwest and west coast areas. He formerly managed the Houston district office.

**R. W. Jones, Jr.**, formerly sales manager of the airconditioning division of Friedrich Refrigerators Inc. has been named vice president in charge of air conditioning sales for that company. He will be in charge of national sales program of both window units and central installations.

New vice president of operations for Warren Webster & Co., Inc. is **Robert W. Butler**.

**James P. Middleton** and **Pete J. Cummings** have been named regional service managers for Fedders Corp. Middleton will cover the Pacific region which includes California, Washington, Oregon, Arizona, Utah, Nevada and Idaho. His headquarters will be in Manhattan Beach, Calif. Cummings, who will work from Parkville, Mo., will handle Colorado, Missouri, Nebraska, Minnesota, the Dakotas, Kansas, Iowa and a portion of Illinois.

Changes have been made within the engineered machinery sales department of York Div., Borg-Warner Corp. **F. C. Wood** has been promoted from mid-western manager to airconditioning sales manager. **W. H. Divine**, refrigeration sales manager, and **W. S. Miller**, marine sales manager, retain these titles but as-

sume new authority over an expanded regional and divisional sales force. **J. V. Clippinger** has been appointed parts and accessory sales manager.

**William A. Boone** has been appointed executive vice president and treasurer of Bell & Gossett Co. Boone, formerly vice president in charge of sales, succeeds **Clarence E. Pullum** who died recently. Boone joined the company in 1940 as a sales engineer. He was made vice president in charge of sales in 1957.

**Jack Robinson** has joined the sales force of Slant/Fin Radiator Corp. and will cover portions of metropolitan New York and Long Island. Previously, he was with the firm's engineering di-

**DO  
IT  
YOURSELF  
AND  
SAVE**

Now — you can buy terminals as you need them. A minimum of parts can make a variety of terminals. New **INTERLOCK DESIGN** prevents stud from turning. Illustrated chart shows how you can make a terminal for any machine.



New Interlock Design

**SEALED UNIT  
NEW  
INTERLOCK  
TERMINAL  
PARTS**

Part #KT9 contains an assortment of parts to repair over 150 individual terminals.

Send for **FREE** make-up Terminal Chart

**SEALED UNIT PARTS CO., Inc.**

1178 East 180th St. • New York 60, N. Y.

Circle No. 80 on Reader Service Card

Circle No. 79 on Reader Service Card

**THE SIGNS OF DEPENDABILITY**

**Refrigeration and Air Conditioning  
RELAYS, OIL CAPACITORS  
and LEAK DETECTORS**  
Authorized Factory Distributors

Request our Catalog RC6-1

Relay Division  
**MOTORS & ARMATURES, Inc.**  
31-24 14th Street • Long Island City 6, N. Y.  
Sold through WHOLESALEERS only

**MADDEN**  
**CHARGING and  
TESTING UNIT**  
*in Metal Carrying Case*



Case protects unit from damage when not in use. Has compartment for accessory fittings plus carrying handle and safety latch for small padlock.

Complete Unit includes metal box, Gauges, Manifold bar with Hand Wheels, Handy Hanging Hook, Handy Hose Holder, one set of Madden Color Coded charging lines.

See your **MADDEN Wholesaler**



**MADDEN BRASS** PRODUCTS COMPANY  
AURORA 2, ILLINOIS, U.S.A.  
EXPORT: AD AURIEMA, INC.  
85 BROAD ST., New York, N. Y.

Circle No. 81 on Reader Service Card

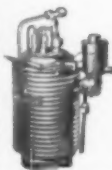


# Easy as 1-2-3 to install the Temprite Bantam-100 CARBONATOR



Why pass up steady big-time carbonator business? Easy as 1-2-3 to install—the Bantam-100 takes no time at all! Just 3 simple connections, hook up the power, and the mighty little Bantam-100 is off and running—way out front in performance! It's fully automatic and worry free! Let the Bantam join your sales force and watch the feathers fly!

**TEMPRITE CARBO-COOLER**  
COOLS and CARBONATES from THE SAME UNIT! Delivers up to 300 glasses hourly! Compact replacement unit for cold drink vending machines, or wherever carbonated water is served. Famous Temprite instantaneous cooling principle and trouble-free service. Measures only 7½" O.D. x 15" height.



Manufactured under rigid quality control by  
**TEMPRITE PRODUCTS CORPORATION**  
BIRMINGHAM, ALABAMA

Rush me details on Bantam-100 and Carbo-Cooler.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

Circle No. 82 on Reader Service Card

120

vision. **Frank Jenkins** of Dale Weitman Co., Appleton, Wisc., has been appointed to represent Slant/Fin in northern Wisconsin.

**Donald Kuhlenschmidt** has been named development engineer for Arkla Air Conditioning Corp. Previously he had been on the engineering staff of York Div., Borg-Warner Corp., at Decatur, Ill.

New sales manager at Elgen Mfg. Corp. is **Robert B. Alexander**. He spent 12 years with Youngstown Div., American Standard and Radiator Corp., in advertising, sales training, and as regional sales manager.

**Frank McGrane** has been named manager of the San Francisco, Calif. office of American Potash & Chemical Corp. McGrane will assume responsibility for the company's product sales in the San Francisco territory.

## WITT REMOTE AIR COOLED CONDENSERS



*With The  
Low Silhouette*

Efficiency, economy, dependability—those three words most effectively describe the operation of Witt Air Cooled Condensers. Available in a wide range of centrifugal blower and fan type models, for single or multiple compressor installations, for indoor or outdoor applications, you'll find a Witt Air Cooled Condenser to handle any size air conditioning or refrigeration system. Winter control systems available for low temperature areas—multiple circuiting available at no additional charge.

Write For Complete Witt Catalog

**A. H. WITT COMPANY, INC.**

940 N. Sycamore Ave., Los Angeles 38, Calif.

Circle No. 83 on Reader Service Card

**Richard Reep**, sales representative, will continue to service San Francisco office customers.

**James A. Gray** has been named general sales manager of Connor Engineering Corp. Gray will supervise and direct the sale of the company's three product lines. He was formerly with Worthington Corp. where he served as a sales manager in Baltimore, Md., Cleveland, Ohio, and Holyoke, Mass.

**Robert A. McKee** has been promoted to manager of the new Albuquerque, N.M. sales office of Trane Co. McKee joined Trane in 1955 and has served as a sales engineer in the company's Wichita, Kan. office.

**Warren Webster & Co., Inc.**, has announced two appointments. **Don F. Bennett** has been named assistant vice president of marketing, and **James J. Bubser** is the new product sales man-



Bennett



Bubser

ager for radiation and steam specialties. Bennett has been with Webster 18 years, most recently in sales and marketing. Bubser, with the firm since 1950, has been a regional sales manager.

**James S. Locke** and **Wesley R. Moore** have been elected vice presidents of Minneapolis-Honeywell Regulator Co. Locke has also been named vice president and general manager of the company's Brown Instruments Division.



Curtis Mfg. Co. has named **Clyde E. Malone** district manager of the company's Chicago division. Malone will headquarter at the firm's offices in Chicago, Ill.

**Sydney Anderson** has been appointed branch manager of the new west coast airconditioning and heating branch of Chrysler Corp.'s Airtemp Div. Anderson, who started as a field engineer in 1943, most recently was general manager, packaged heating and cooling department.

United Electric Controls Co. has promoted **George W. Clapp** to the position of sales manager. Clapp joined the company in 1951 and has served as a sales engineer and account manager.

**Charles H. Harper** has been appointed director of industrial relations for American-Standard, Industrial Div. Since 1956 Har-

per has served as manager of labor relations at the corporate staff headquarters in New York City.

**R. N. Franz** has been named manager of the newly established Southern resale region of Worthington Corp. Headquarters for the region will be in



Franz



Reardon

Atlanta, and will cover the territories of Atlanta, New Orleans, Houston and Dallas, and Tulsa. Succeeding Franz as central regional resale manager is **F. J. Reardon**.

**Harold H. Mitchler** has been named district manager of the

New York office serving New York and metropolitan area for Marsh Instrument Co. He joined the company in 1939.

**W. H. Westenhoefer**, **James C. Hackley**, **Alvin J. Schnur** have been named district sales managers for airconditioning, heat pump and furnace products manufactured by Perfection Div., Hupp Corp. Districts covered by the new managers are Pennsylvania-New Jersey; Texas-Oklahoma-Louisiana; Missouri-Kansas-Iowa-Nebraska, respectively.

**Donald W. Irwin** has been appointed a Mueller Climatrol sales representative for the Michigan area.

**Harold F. Ames** has been elected vice president of Controls Co. of America. He has also been named director of sales of the Control Switch Div.



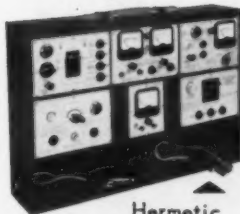
# Stop!

...have you checked your requirements of **AIRSERCO PRODUCTS** today?

See your Airserco wholesaler today!

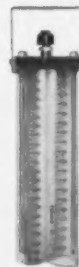
**AIRSERCO PRODUCTS** are today's most widely accepted...

- Testing Instruments
  - Precision Measuring Equipment
  - High Vacuum Pumps, Gauges, and Accessories
- in the Air-Conditioning and Refrigeration Industry.



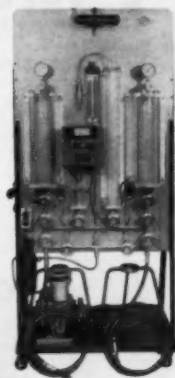
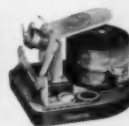
Hermetic Compressor Analyzer

KC-2R High Vacuum Pump



Portable Charging Cylinder

Capacitor Start Relay



Portable "2 Unit" Charging Station

"AIRSERCO . . . creative leader of the industry since 1933."



**AIRSERCO MANUFACTURING CO.** PITTSBURGH 13, PENNSYLVANIA, U.S.A.

Airserco has built more refrigeration testing equipment than any other company in the world.

## TEL-TRU DIAL THERMOMETERS

100% STAINLESS STEEL

### Industrial

EASY TO READ—NON BREAKABLE

All popular Dial Ranges  
Fahrenheit or Centigrade

**POCKET TYPE**—Model PT-50, Service Man's Spot Check. Head diam. 1". Stem 5" Long x .150 diam. Hard Rubber Pocket Case.

**GENERAL TYPE**—Model GT-100. Head diam. 1 3/4". Stem 5"-8" Long x .142" & .150" diam. Adjustable Vessel Clasp; Manual Preset Indicator for Marking Temperature.

**THREAD TYPE**—Model GT-200. Head diam. 1 3/4". Standard 1/4" & 1/2" NPT. Stainless Steel Connection Nut. Stem: 2 1/2", 4", 6" Long x .150 diam. Measurements include Thread.

**THREAD TYPE**—Model GT-300R With Re-Calibrator. Model GT-300 Without Re-Calibrator. Head diam. 3". Standard 1/2" NPT. Stainless Steel Connection Nut. Stem 2 1/2" to 24" Long x .250" diam. Measurements include Thread.

**FREE!**  
Literature  
on Request  
Manufacturers  
Agents Wanted

## TEL-TRU

MANUFACTURING COMPANY

402 St. Paul Street, Rochester 5, N.Y.

Subsidiary of Germanow-Simon Machine Co., Inc.

**Removes MORE  
SCALE per  
Dollar Spent!**

### VAPCO SCALE REMOVER

The activated acid in powder form containing inhibitor, wetting agent and algicide for a **COMPLETE** cleaning job under the most severe conditions. Easy on galvanize—safe for equipment. Keeps head pressure down—efficiency UP! 10 and 50 pound drums with "Tel-Action" pH indicators.

### VAPCO-HIB

Make your own cleaner with VAPCO-HIB. Added to muriatic acid, VAPCO-HIB increases the acid action, yet provides outstanding protection to metals including galvanize. Supplied in 8 and 32 ounce bottles and bulk.

**Vapco**  
QUALITY  
PRODUCTS

Complete literature on request or see your dealer TODAY!

**GERMAN  
COMPANY**  
ST. LOUIS 25, MO.

## LETTERS

Continued from page 8

carbonator called the jet carbonator.

This product was manufactured somewhere in the New Jersey area. I have tried on several occasions to contact the manufacturer, but could not find same. I have looked through several of the New Jersey classified telephone books, but have found nothing.

Is there any records you may have pertaining to this item so that I may contact the manufacturer or distributor for an order?

BERNARD SEIGER  
Seiger Service  
Philadelphia, Pa.

*Your memory is quite excellent. In our February 1957 issue, we ran a "New Product" item on the plastic carbonator you describe in your letter. Manufacturer of this unit is Yan-Nell Industries, 210 Central Avenue, Newark 4, New Jersey. F. M. Iannelli is the man to contact.*

### Contractor Defends Use Of Ammonia Systems

EDITOR:

After reading the article, "Leaking Ammonia Systems Need Special Service," in the January 1960 issue of THE REFRIGERATION & AIRCONDITIONING BUSINESS, I have to disagree with the writer of this article and come to the defense of the ammonia plant.

First of all, it is not necessarily good practice to shut down the machine room. If a leak is in the lo-side, even with more than one evaporator, the liquid line can be closed, and the suction valves on all but the leaker can be closed. Then the ammonia can be pumped from the leaking unit.

As an example, we were recently called to a slaughter house at 2 a.m., to handle an ammonia leak. A thread on a 2" liquid leg of a flooded system had rusted through, opening up a crack about 1/4" x 2". Following the above procedure, we stopped the leak in about 30 minutes, making it possible to replace the defective pipe.

Ammonia had leaked into this cooler and two adjoining coolers about two hours before we arrived. All coolers were filled with fresh killed beef, lamb and veal. It was

all thoroughly inspected by the city's board of health and found to be in perfect condition.

In the lo-temp rooms, keeping the compressor running is very important. Since the lo-side of a lo-temp operation would be in a vacuum, liquid ammonia could not run out. We had a similar case where a nipple was broken off a coil, the nipple being an oil purge connection. We shoved a cork into the nipple, cut a new thread on the nipple, pulled the cork out and quickly screwed on a valve. Quick, simple and sure.

If the leak occurs in the engine room, any of several procedures can be followed. For example, by reversing the manifold on the compressor and pumping into the lo-side or with a hose leading to a barrel of running water, the leaking vessel can be pumped or purged out, whichever proves to be more feasible.

As to using SO<sub>2</sub> as a neutralizer, we tried that once. Since an ammonia mask will not stop the sulphur fumes, anyone trying to do anything in the affected area is simply out of luck. A good size fan by an open door drawing the ammonia fumes out is much more efficient than the sulphur.

In defense of my favorite refrigerant, I think the writer of this article should follow it up with another one on the danger of open flames, such as Halide leak detectors, around the Freons and methyl chloride. A very good friend of mine spent nearly six months in a hospital, the first one on the critical list, as a result of a Halide torch and a leaking 2-hp methyl job. The resulting explosion caused extensive damage to the building as well as damage to two adjoining buildings.

Judging from 24 years experience with sulphur dioxide, the Freons, ammonia, and carbon dioxide systems, I honestly believe that the good old reliable ammonia system will never be replaced. Comparing the cost of ammonia to other refrigerants, especially where there is 2,000 to 3,500 lbs. of refrigerant involved, such as in a 200-ton installation, the difference is quite a bit.

I do agree with the writer in one respect, however—servicing ammonia systems is no job for a novice. But then, no refrigeration job is.

OTTO HUTTING  
Hutting Refrigeration Co.  
Marlboro, N. Y.

## Carbide Building Has Plenty of Cooling

Two 78,000-lb. Worthington refrigeration machines, will be raised almost 660' above New York's swank Park Avenue this summer as work moves toward completion of the 52-story Union Carbide building. Engineers of the George A. Fuller Co., general contractor, believe this will be the highest heavy machinery installation in any commercial building in the world.

The building, to be occupied early in 1960, will consist of a 720' tower facing Park Ave. and a 13-story wing facing Madison Ave. Since it is being built over two levels of New York Central railroad tracks just north of Grand Central Station, the tower wing has no basement in which heavy machinery normally would be located.

Three other refrigeration units are being installed under the lower Madison Ave. wing which has a four-level basement. The five Worthington units provide 5,000 tons of refrigeration capacity — enough to operate 5,000 8 cu.ft. home refrigerators. They will be used to chill water for year-round airconditioning of more than one million sq.ft. of office space.

Each refrigeration machine consists of a multiple-stage, 949-hp steam turbine operated by an under-the-street steam supply, a multiple-stage compressor,

a water chiller, a steam condenser, plus instrumentation and controls. A refrigerant draw-off pump and reservoir will be provided for each machine. All five refrigeration units — three in the sub-cellar and two in the tower — will feed a common chilled-water circuit for maximum operating and maintenance.

The two tower units will share the 52nd floor machinery room

**T**HERE'S quite a story behind 38 new Drayer-Hanson airconditioning units now up for sale. And the entire saga is logged in the police files of Los Angeles, Calif. Seems these units reached the job site of a motel more than a year ago. But, before crews got the units installed, the airconditioners disappeared without a trace . . . factory cratings and all. Police eventually found the purchaser of the hot equipment, but the thief is still at large. The "Spotaire" low-cfm units are now stockpiled at J. Herman & Co., the L.A. airconditioning contractor, who originally ordered them.

with a 9-cell water cooling tower and other equipment. Live floor loading on this level will be 250-lbs. per sq.ft.

The units to be installed in the tower machinery room will be lifted in sections, the largest weighing 36,500 lbs. Each section will be raised the 660' from street level in a single lift.



**THESE 14 DEALERS** have each recorded 25 years of service for Janitrol Heating & Air Conditioning, a Div. of Midland-Ross Corp. Robin A. Bell, Janitrol president, presented each with a plaque in special ceremonies at the firm's second annual get-together. Seated (l. to r.) are Silvio O. Iorio, Falso Heating & Sheet Metal Co., Syracuse, N. Y.; Floyd F. McCoy, McCoy Heating Co., Bay City, Mich.; C. B. Haning, Haning's Inc., Lancaster, Ohio; Robin Bell; Arno Gerdson, A. H. Gerdson Co., Cincinnati, Ohio; A. T. English, Columbus Air Conditioning Corp., Columbus, Ohio; Carl C. Kienle, Kienle Heating & Sheet Metal Co., Piqua, Ohio. Standing (l. to r.) are Stephen N. Benes, United Natural Gas Co., Oil City, Pa.; Kurt Harris, Ohio Gas Co., Bryan, Ohio; James B. Lawrence and Paul Sheehan, Worchester Gas & Light Co., Framingham, Mass.; Frank Adams, Public Service Co. of Colorado, Denver; George E. Adema, N. M. Adema & Son, Buffalo, N. Y.; William J. Tenbusch, Detroit Gas Burner Co., Detroit, Mich., and Norman Richman, Richman Heating Co., Detroit, Mich.

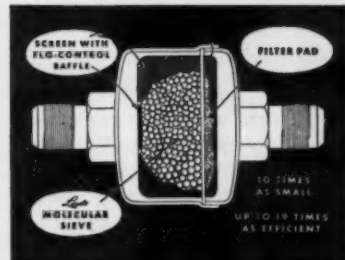


### COMPACT SIZE ...LARGE CAPACITY

Test them, use them, and you too will find a new high in TMC Filter-Driers with Linde Molecular Sieve. Their radically improved Moisture Removal, Filtration, Acid Removal and Pressure Drop have been proved by recognized authorities and approved as original equipment by foremost manufacturers.

### SAVE ALL ALONG THE LINE

Fifteen-ton TMC Filter-Drier fits palm of your hand...saves space in refrigeration systems, in your stockroom, in your service trucks. Simplified line means simplified ordering, reduced inventory, lower investment. **PRICES**...you'll get a pleasant surprise! It will pay you to write for **QUESTIONS and ANSWERS Bulletin 1157 RIGHT NOW!**



### TUBE MANIFOLD CORPORATION

445 Bryant Street • N. Tonawanda, N. Y.

Another Product of the World's Largest  
Manufacturer of Liquid Receivers

Circle No. 102 on Reader Service Card



## Head pressure DOWN operating efficiency UP with **anco** condenser cleaner

**ANCO** Condenser Cleaner removes scale and rust from condensers within 2 to 15 hours, depending on scale thickness and composition. Following application, head pressure drops to normal and the condenser's efficiency is restored. Simply dissolve this dry formula in sump while system operates. It works quickly and safely and is equally effective in evaporative condensers and those with separate cooling towers. Ask your supplier about it.



SPECIALIST IN MAKING WATER BEHAVE

**Anderson**  
Chemical Company, Inc.  
Box 1424 • Macon, Georgia  
Memphis, Tenn. • Box 7432 • DeSoto Station

## NUCLEAR LUXURY SHIP IS COOLED BY CARRIER

Atom heat, coupled with Carrier cooling, will provide year-round airconditioned comfort for passengers and crew of the nuclear merchant ship "Savannah." "Weathermaster" air handling units will distribute the airconditioning to all living, public, and work spaces.

Cooling will be supplied by chilled water from a marine centrifugal refrigerating unit of 210 tons capacity. Additional low-temperature systems will refrigerate cargo and food storage areas from zero to 45 degrees.

Savannah is the fifth type of nuclear-driven ship to use Carrier equipment.

## RECOLD DELTRIC COILS FOR MINUS 10 DEGREES

Temperatures down to minus 10 degrees may now be obtained when using Recold Corp.'s "Deltric" coils. The Deltric, which employs completely automatic electric defrosting, is now avail-

able for use in low-temperature situations where light moisture loads are involved.

This unit is designed for easy ceiling installation in either corner or back wall positions, with only simple electrical connections needed.

## 10 NEW SALES ENGINEERS ATTEND CONTROLS CLINIC

Ten new foreign sales application engineers of Controls Co. of America have completed a two-month study of the firm's products as they are applied outside this country.

Eight of these men are employed by the company's subsidiary in Zug, Switzerland, and the others work in Canada. They're part of Controls program to strengthen application engineering service for appliance manufacturers in the European Common Market and Canada.

**YOUR WHOLESALER  
CAN SERVE YOU — LET HIM!**

## Refrigeration or Air Conditioning LITTLE GIANT FITS THE NEED

Compact Little Giant condensate unit is the most economical, efficient condensate remover on the market today. Especially designed to fit any mechanical refrigeration or air conditioning unit.

No lubrication is needed in the Little Giant pump which is hermetically sealed for trouble-free operation... no lubrication needed. Equipped with positive displacement pole switch or with float operated mercury switch for SPT Models.



**Little Giant**

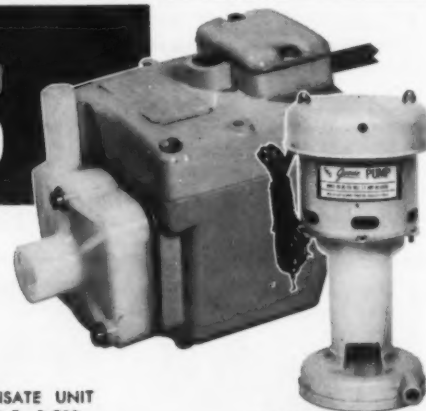
**PUMP COMPANY**  
P. O. Box 7025 • Oklahoma City, Okla.

**THE BIG NAME IN THE SMALL PUMP FIELD**

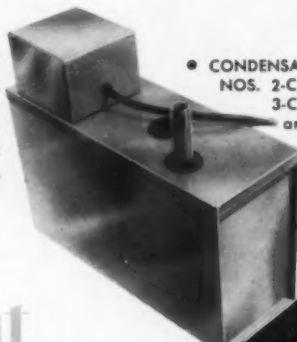
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MAY 1960/THE REFRIGERATION & AIRCONDITIONING BUSINESS

• **PUMP NO. 2-38N.**  
Especially designed for ice making machines.



• **CONDENSATE UNIT NOS. 2-C, 3-C20, 3-C25, 4-C28,** for any mechanical refrigeration or air conditioning unit.



• **GOODE VERTICAL PUMP NO. GV-30.**  
For ice making machines and for use with evaporative coolers up to 7,000 cfm.

• **SHALLOW PAN CONDENSATE UNIT NOS. 2-C-SPT, 3-C-SPT.** For ceiling mounted units and others in which minimum height is important.



Our factory will be glad to supply you with complete specifications and additional information.



# FIND • FIX

## Refrigerant\* Leaks

# FAST

with the

# PREST-O-LITE

Trade Mark

## Refrigeration and Air-Conditioning Outfit

This one handy, compact outfit is all you need to find and fix refrigerant gas leaks. Sensitive leak detector "sniffs" as little as 100 parts of halide refrigerant\* in a million parts of air... *in seconds*, pinpoint leaks too small to show up in soapy water. Also included in the outfit are 3 sizes of torch stems for open-flame soldering, heating, and brazing; an adjustable gas pressure regulator; interchangeable torch handle; hose; enameled steel carrying case. Models for use with B or MC PREST-O-LITE acetylene tank.

\*ASRE numbers 11, 12, 13, 14, 21, 22, 113, 114



**\$43.00 COMPLETE**

PREST-O-LITE air-acetylene equipment and small tanks are available from your local supplier of LINDE products. See him today. Or write for further information to: Dept. 624, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd St., New York 17, N. Y.

"Prest-O-Lite," "Linde" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

Circle No. 90 on Reader Service Card  
THE REFRIGERATION & AIRCONDITIONING BUSINESS/MAY 1960

## NEW REFRIGERANT VALVE IS WHEEL OPERATED

An improved refrigerant cylinder valve that is hand-wheel operated has been brought out by Union Carbide Chemicals Co. for its line of "Ucon" refrigerant cylinders.

This product incorporates several features of the refrigerant



valve now in use, plus two design improvements for easier operation, decreased maintenance, and prevention of leakage.

Originally, these cylinders used a valve designed for chlorine service. The new unit is for use with fluorocarbon refrigerant. Another feature is the packless diaphragm design, eliminating continual adjustments and replacements of packing and leakage problems.

## 310-TON HEAT PUMP INSTALLED IN CHINA

A 310-ton water-to-water heat pump is being installed in a building in Hong Kong, China. Handling the contract is Yee On Hong Co., Ltd., the Worthington Corp. distributor in that area.

It is reported as one of the largest heat pump systems ever installed in the Orient and is unique in that ammonia compressors will be used, converted for use with refrigerant.

Each of the two compressors will product 155 tons at 450 rpm. Both refrigeration systems will operate in parallel. Sea water from Hong Kong Bay will be used for cooling the condensers in the new installation.



## Install Insulation with TUFF-BOND

Super-Strength Adhesives

### TUFF-BOND #7

... fire-retardant adhesive for installing insulation

### TUFF-BOND M-102-H

... economical duct liner adhesive

### TUFF-BOND 21-C

... clear lap sealer and lap adhesive

### TUFF-BOND 21-W

... white lap sealer and lap adhesive

### TUFF-BOND #500

... exceptionally high-strength chemical-set adhesive with wide thermal range -100° F. to 350° F.

### TUFF-BOND #1000

... high heat resistance for bedding and installing high temperature insulation

### TUFF-BOND #12

... high pressure duct sealer

### TUFF-BOND QUIK-SET

... neoprene-base, fast-setting adhesive. Recommended for installing metal and nylon hangers to smooth surfaces.

### TUFF-BOND GENERAL PURPOSE IMPROVED

... all-around adhesive for installing insulation, insulation hangers, etc.

Ask for descriptive literature and prices.

**GOODLOE E. MOORE**  
INCORPORATED  
DANVILLE 25, ILLINOIS

Circle No. 89 on Reader Service Card

## Mighty METRO does it again!

**INCREASES THE EFFICIENCY...LENGTHENS THE LIFE...  
OF AIR CONDITIONING SYSTEMS!**



a well balanced  
program...



**METRO DESCALER**

Removes scale deposits—slime growths, too—from evap condensers and cooling tower systems. Safe, easy-to-use dry acid powder packed in handy 10 lb. bags or in bulk.

**METRO EZ TREAT**

A complete water treatment in one package. Controls scale, corrosion, slime all season long. Comes in disposable feeder-cans that automatically dispense chemicals. Packed six 5 lb. cans per case.





For further information, write:

### METROPOLITAN REFINING CO., INC.

50-23 — 23rd St., Long Island City 1, N.Y.

### HARTFORD U. CHILLER USES BOILING WATER

A machine which uses hot water to produce cooling has been selected for the airconditioning system at the University of Hartford. Hot water, above normal boiling temperatures and supplied under pressure from a central plant, activates cooling equipment for the school's new general classroom building.

This water also is the source for winter heating and domestic warm water. Carrier Corp. supplied the unit which works on the principle that evaporation of water cools. In the process, water vapor is absorbed by a salt solution.

### L. A. SUPPLY COMPANY OPENS BRANCH OFFICE

A San Diego branch office has been opened by Air Conditioning Supply Co. of Los Angeles, Calif. Frank Antelline has been named assistant branch manager of the new office, at 3752 Rosecrans Boulevard.

This expansion was based on Air Conditioning Supply being awarded exclusive sales representation for Drayer-Hanson air-conditioning products in Greater San Diego.

### TUBES FOR MISSILES MADE IN CLEAN AREA

Key electronic tubes used in many missiles are manufactured in an antiseptic area at General Electric's power tube plant, Scranton, Pa. This facility is sealed off from the rest of the factory.

Exacting atmosphere controls and other safeguards result in greater tube reliability and longer life operation. To do this, the area is supplied with specially filtered and controlled air to keep out dust, lint, and other foreign matter.

This filtering system completely changes the air in the area every six minutes and removes particles as tiny as 1/10 of a micron. Relative humidity of 35% is maintained.

Access to the area is made only through double air-locks.

## WHERE THE %\*#!! IS IT?

Keep Everything at Your Fingertips with a New

# READING

**JOB-PLANNED  
UTILITY BODY**



Don't waste time and money playing hide-and-seek with your tools and equipment. Everything is easy to find in READING's "Magic Stowaway" Compartments. Adjustable removable shelf dividers create bins for parts of all sizes. Shelves lift out to make room for large equipment in watertight theftproof compartments.



See your truck dealer or write us direct for FREE comparison chart that compares leading utility bodies. See why READING leads all others in quality, utility and economy.

**READING BODY WORKS, INC., 420 Gregg Ave., Reading, Pa.**

## RECORD SYSTEMS COOL DISNEYLAND SUBMARINES

Passengers aboard the eight submarines in Disneyland are cooled and warmed by Recold Corp. airconditioning and heating coils. These systems provide a constant 70 degree temperature.

A unique system of diffusers prevents moisture accumulation inside the individual passenger view ports located below the sub's water line. Each of the 38 windows has a small diffuser placed in the base of the frame.

By bouncing fresh, conditioned air off the insulated glass, moisture is completely evaporated and the fresh air helps overcome any closed in feeling.

Designed by J. S. Hamel, the system has one Recold split circuit coil for direct expansion, used in conjunction with two shell and tube condensers. It also contains two 2-ton compressors and a hot water coil.

Installation was by Todd Shipyard Corp., San Pedro, Calif.

## FLYING IS MADE SAFER BY COOLING EQUIPMENT

Trailer-mounted, mobile air-conditioning systems will play a lead role in preventing future aircraft mishaps. These units will provide cooling for 35 TACAN (tactical aerial navigation) systems used to control aircraft in the vicinity of airports and other ground stations.

Unless cooled properly, this complex equipment is subject to unreliable operation or even system failure. Airconditioning equipment supplied by Airtemp Div., Chrysler Corp. will insure accurate, dependable operation of TACAN systems under any extremes of temperature.

## CANCER RESEARCH LAB NEEDS CAREFUL CONTROL

Super-sensitive thermostats control the indoor climate at the new \$4 million Walker Laboratory of the Sloan-Kettering Institute for Cancer Research in Rye, N.Y. The objective is to safeguard living conditions of thousands of laboratory mice.

Since sudden temperature

changes might wipe out months of research work, rooms in which animals are kept are in the heart of the building. This would be the last area to be affected.

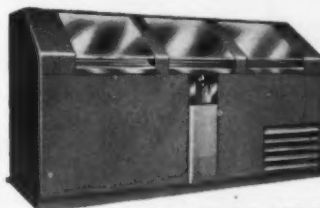
Almost everything in the heating and airconditioning systems is duplicated. Automatic devices are alert for instant change-overs to auxiliary systems to maintain the 74 degree temperature.

A supervisory data center controls the network. The control panel, designed and built by Minneapolis-Honeywell Regula-

tor Co., is equipped with an alert system of flashing red lights and alarm bells. This system is activated if temperatures vary more than two degrees either side of 74 F.

Forty-eight individual room thermostats control heating or cooling needed in each location. Besides temperatures and humidity controls, air in each of the animal rooms is completely replaced with fresh air, filtered through Honeywell electronic air cleaners, 11 times each hour.

## for BETTER COOLING go NOR-LAKE all the way MILK AND BEVERAGE COOLERS



**Model SCP-6**

Dry Bottle Cooler—Features clean-line design, recessed toe space, two-way blowers and heavy duty compressor. Baked enamel or stainless steel. No installation necessary. 24 models, up to 48 12-oz.-bottle case capacity.



**Model LSCP-6**

Lo Boy Beverage Cooler—Perfect for under counter use—just 34 1/4" high! E-Z slide lids disappear completely. 18 models—up to 40 12-oz.-bottle case capacity. Baked enamel or stainless steel.

### DIRECT DRAWS



**Model 3KR**

Here's Cold Dome refrigeration right to the faucet tip—a Nor-Lake exclusive! Styled with rounded edges for safety and easy cleaning. Baked enamel or stainless steel. 12 models with up to 4 keg capacity.

### ICE CUBE MAKERS



**Model SCIM-25**

Fill trays with one hand, without spilling, in this handsome self-contained unit. 4 1/4 bushel storage (630 cubes) with extra bushel freezing! Baked enamel or stainless steel—several models.

### WRITE FOR FULL INFORMATION AND SPECIFICATIONS:

**NOR-LAKE, Inc.**  
Second Ave. and Elm,  
Hudson, Wis., Dept. 202



**NEED IT NOW?**  
NOR-LAKE can ship now—all models kept in stock!

Please rush FREE illustrated information on

☐ Bottle Coolers ☐ Direct Draws ☐ Ice Cube Makers

☐ Other \_\_\_\_\_

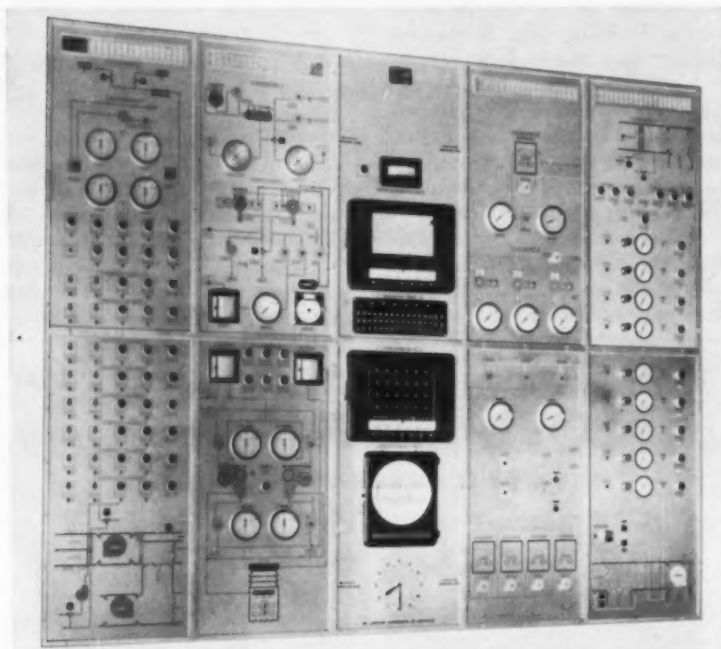
NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



## One Control Handles 311 Cooling Zones



**COMPLETE CONTROL** of the 301 airconditioning zones in a new building and 10 zones in an existing building is maintained by the schematic control center. This system brings together the remote operation of 14 separate mechanical equipment rooms. It is installed in the California Division of Highways.

A new building with 301 air-conditioning zones is the new home of the California Division of Highways. Air is supplied the 301 zones at high velocity to Barber-Colman constant volume mixing boxes. The boxes serve the purpose of tempering the zone supply air and maintain the required air volume regardless of static pressure changes within specified limits, and attenuating fan noises to maintain quiet office areas.

Cooling is supplied by two Trane 350 ton Centravac units, and two Cleaver Brooks boilers are used as the heating media.

The entire airconditioning system for the new building, as well as the smaller 10-zone older building, is controlled by a schematic control center located in an office of the new building. All graphic illustrations depicting the many fan, refrigeration, heating and airconditioning systems employed throughout the building are graphically illustrated on a gold anodized aluminum background. The control and remote operation of 14 separate me-

chanical equipment rooms is centralized in one location.

The time switches of the master control panel automatically pilot the operation of the equipment in both buildings. And the supply fans of each system are started in sequence through a program switch to reduce the starting load.

Hand-Off-Auto switches override the automatic control to start and stop any supply or exhaust fan, or the refrigeration system of the new building, which includes the chilled water pumps, condenser pump and cooling tower fan. Pilot lights indicate operation of each of the previously mentioned items and also all hot water pumps, oil pumps, boiler burners and all compressors.

The existing building room thermostats have been modified so that the control point can be remotely adjusted.

The hot and cold deck temperatures of the eight fan systems in the new building can also be remotely adjusted.

A multiswitch resistance bulb

temperature indicator checks 35 various temperatures throughout the building. Relative humidity can be determined from the outside air wet and dry bulb recorder. Boiler flue gas temperature is indicated on a Pyrometer.

The entire system is monitored by a warning light and buzzer control to indicate immediately unsafe conditions should they occur at any point throughout the entire system.

Roll-type viscous-impingement filters are used on all fan systems with charcoal activated carbon filters used on all outdoor intakes. During adverse atmospheric conditions the outside air and exhaust air dampers could be closed and the remaining outside air would be filtered by the activated charcoal.

The architectural design of the building and complete engineering were handled by the California State Division of Architecture.

### AIR DIFFUSION PANEL HEATS RADAR VANS

A low-velocity air diffusion panel has solved a ticklish heat problem in the close quarters of new mobile radar vans designed to detect enemy missiles. Hughes Aircraft Co. was faced with the problem of cooling the electronic equipment plus the seven operators in the compact vehicles.

Designers were faced with two problems. First, the van ceiling was only three inches above the head of the average operator. Second, there was a limitation of diffusion space to a narrow central corridor. Standard high velocity air diffusion was unsatisfactory from both a draft and noise standpoint. So low velocity was chosen.

Air diffusers consist of panels with a perforated distribution plate which, by means of a pressure displacement valve, slows down the speed of cool air and diffuses it evenly throughout the airconditioned area. Air is brought to the panels from the cooling source through the plenum above the van ceiling.

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CAN SERVE YOU — LET HIM!**



## AS WE SEE IT

Continued from page 33

175,000 pounds of ice per week, at a weekly cost ranging up to \$800, before converting to mechanical cooling.

● What's ahead for frozen foods? Nothing but a bright and shiny future, if you listen to the people in the business.

Here are some samples of recent predictions:

"In the next three to four years total frozen food production will be between 8% and 9 million pounds."—Harold J. Humphrey, president, National Association of Frozen Food Packers.

"1969 production of prepared frozen foods will be 4 billion packages, three times today's total. 1969 sales of all frozen foods will hit \$5 billion, twice today's total."—John B. Fowler, Jr., chairman of the board, Seabrook Farms Co.

## NUCLEAR SUBMARINES COOLED BY CARRIER

Contracts totalling \$3 million to produce quiet, heat-operated cooling machines for nuclear-powered submarines have been awarded Carrier Corp. by U. S. Navy. The first unit is scheduled for the attack sub "Thresher."

This cooling unit will operate directly on steam from the nuclear reactor without requiring conversion to electricity. Previously sub airconditioning systems used compressors with pistons, but the new equipment substitutes a vapor-absorption and heating process to produce the same effect without mechanical action.

Depending on fluctuating operating conditions, these new units will produce capacities from 100 to 200 tons. Chilled water will be circulated to cooling and dehumidifying coils.

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## Dealer-Distributor APPOINTMENTS

Texas Instruments Inc., Metals & Controls Div., has appointed three new field engineers. They are: Samuel T. Bryant of Cincinnati, Ohio for the Dayton-Cincinnati area; Robert S. Byers of Lexington, Ky., for the Chicago area; and Robert L. Paul of Sun Valley, Calif., for the southern California area.

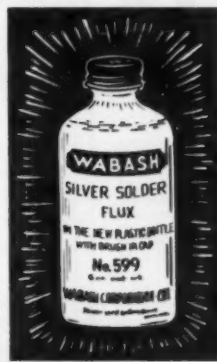
Southwest Mfg. Co. has appointed Hamada Refrigeration Sales Co., Honolulu, as its distributor in Hawaii.

Bert Gurney, Bert Gurney and Associates, Inc., Omaha, Neb. has been appointed as Omaha sales representative for Ilg Electric Ventilating Co. His territory covers Nebraska and western counties in Iowa.

## SILVER SOLDER FLUX

### NEW UNBREAKABLE PLASTIC BOTTLE

— "Conolene" six-ounce bottle comes complete with brush-in-cap for easy application. Wabash Silver Solder Flux provides increased capillary action for faster, easier, and more satisfactory results. Less fumes, glare, and irritation to the skin. Other sizes available . . . write for prices.



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## BIGGEST HEAT PUMP PLANNED FOR NEWSPAPER

A gigantic heat pump installation has been planned for the new \$5 million publishing house in Huntington, Ind., for "Our Sunday Visitor," a national Catholic newspaper.

Carrier Corp.'s contract calls for three 500-hp water chilling machines. In most heat pump installations, pistons or reciprocating refrigerating compressors have been used. For this job, a system has been developed using the rotative action of impeller wheels spinning at high speeds in centrifugal refrigerating compressors.

Assembly of the heat pump is by Baker-McHenry Co., Indianapolis. The entire project is expected to be ready for occupancy by January, 1961.

## GENERAL CONTROLS CO. OPENS IN SAN DIEGO

A San Diego, Calif., area resident office has been opened by General Controls, Co. Don Wolf

heads the new operation, which will provide service for original equipment manufacturers' sales outlets plus the aircraft and electronic industries.

Since General Controls has manufacturing and warehouse facilities in Glendale, no local inventories will be maintained in San Diego. Location of the branch is 4750 Seminole Dr.

## ELECTRIC HEAT UNITS USED FOR NEW SCHOOL

Electric unit ventilators, providing continuous and individual classroom heat, have been installed in the new Eastwood Elementary School, Wabash, Ind. The "Syncretizer" units use General Electric fin-tubular heating elements.

The needs of each room dictate amounts of heat, ventilation, or natural cooling. Control is automatic, and units are located in each room, usually under a window along an outside wall.

Outside air is drawn into the ventilator through a port and

mixed with room air. This air is then blown over heating elements and distributed uniformly into the classroom.

Installation was by John J. Nesbitt, Inc., Philadelphia, Pa.

## ROOF MOUNTS SOLVE SPACE PROBLEM AT A & P

Packaged roof-mount air conditioning and heating units solved a space problem for an A&P supermarket in New York City. Extensive remodeling of the single-story building was needed to gain profitable floor space.

Ventil-Aire Corp. of Brooklyn came up with the solution. They installed four 7½-ton units to serve a floor area of 10,000 sq.ft., placing two forward units near the checkout area with 250,000 Btuh each. Two rear units provide 200,000 Btuh apiece.

Roof units were mounted directly on structural beams.

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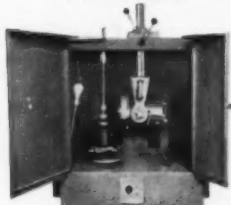
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### BOOK REVIEW

**Title:** Pipefitters Handbook, 2nd edition, 410 pages.

**Author:** Forest R. Lindsay.

**Publisher:** The Industrial Press, New York City.

**Price:** \$6.00

This second edition, containing 126 more pages than the first, is useful in new fields such as plastic pipe. It is written to enable pipefitters to quickly solve problems involving pipe bending, layout or installation, either in the shop or in the field. Much of the book is taken directly from the author's original tables developed as a result of his 35 years' experience as a pipefitter. Immediate answers to all kinds of pipefitting problems can be obtained from these tables, eliminating lengthy calculations. Subjects covered include pipe bending, offsets, mitered joints, standard pipe dimensions and thread data, screwed and flanged fittings, valves, solder joint fittings, plastic pipe, sheet metal data, steam properties, melting points of metals, conversion factors, and use of trigonometry. A complete dictionary of terms is in the back of the book.

### BHC NAMES CHAIRMEN FOR TWO DIVISIONS

New plan board chairmen for both residential and commercial & industrial divisions of the national Better Heating-Cooling Council have been announced. Staff managers for both divisions also were chosen.

Robert W. Williams is board chairman, residential division. Commercial & industrial division chairman is Henry M. Gibb. Residential staff manager is Ray Schumack, and Douglas Grewer has been appointed staff manager, commercial & industrial division.

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